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Related to VT 007 894, "Report of the National Advisory Commission on Health Manpower, Volume I," this volume presents seven appendixes to that report. Appendix II concerns variation in per diem direct hospital expenses. Appendix III includes the reports of the panels on: (1) consumer role in the health care system, (2) education and supply, (3) federal use of health manpower, (4) foreign medical graduates, (5) hospital care, (6) impact of new technologies, and (7) organization of health services. Appendix IV describes the Kaiser Foundation Medical Care Program. Appendix V presents projections regarding the demand, supply, and price of health services in 1975. Appendix VI reviews major studies of health manpower requirements between 1930 and 1965. Appendix VII discusses legal regulation of health personnel. Appendix VIII presents extensive statistical tabulations of data on physicians. (JK)

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REPORT

OF THE

NATIONAL ADVISORY COMMISSION ON HEALTH MANPOWER

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VOLUME II

NOVEMBER 1967

VT007895

REPORT

OF THE

NATIONAL ADVISORY COMMISSION ON HEALTH MANPOWER

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

VOLUME II

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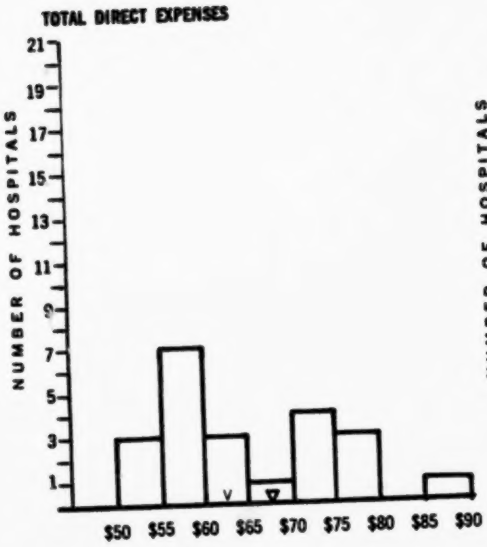
Appendix II

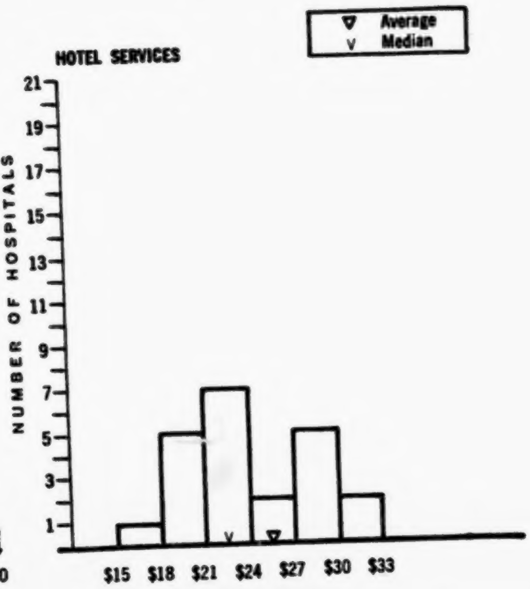
Variations in Per Diem Direct Expenses

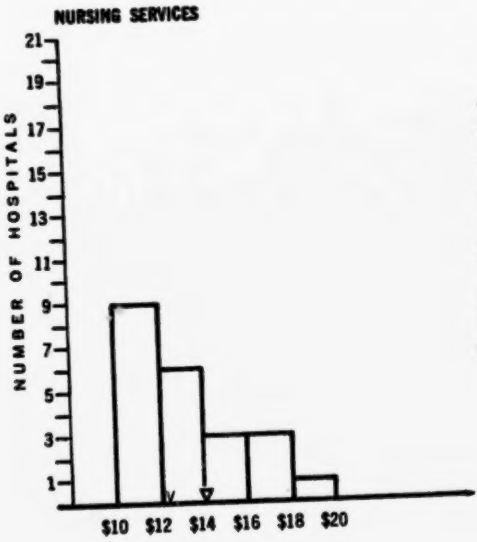
TABLE 1.—*Voluntary short-term teaching hospitals, New York City, 1965*

Rank order	Total direct expenses	Hotel services	Nursing services	General patient care services	Ancillary patient care services	Non-operating expense
1	$86. 95	$32. 01	$19. 71	$9. 55	$23. 15	$4. 88
2	79. 39	31. 72	17. 03	9. 47	23. 01	4. 31
3	76. 14	29. 91	16. 50	8. 93	21. 83	4. 00
4	75. 60	28. 87	16. 01	8. 67	20. 42	3. 93
5	74. 62	28. 70	14. 58	8. 44	19. 57	3. 83
6	74. 21	28. 58	14. 54	8. 24	19. 47	3. 71
7	73. 03	28. 46	14. 09	8. 06	19. 44	3. 47
8	72. 94	25. 69	13. 72	7. 93	17. 14	3. 44
9	68. 04	24. 56	13. 63	7. 73	16. 67	3. 39
10	63. 89	23. 98	12. 57	7. 37	16. 64	3. 34
11	63. 78	23. 21	12. 33	7. 31	16. 44	3. 31
12	62. 23	22. 90	12. 14	7. 23	16. 38	3. 26
13	58. 63	22. 55	12. 12	6. 68	15. 07	3. 24
14	58. 57	22. 53	11. 74	6. 62	14. 80	3. 19
15	56. 93	22. 23	11. 68	6. 52	14. 11	3. 17
16	55. 78	21. 73	11. 38	6. 50	13. 64	3. 16
17	55. 75	20. 88	11. 33	6. 47	13. 62	3. 15
18	55. 38	20. 37	11. 28	5. 31	13. 54	2. 98
19	55. 21	19. 94	11. 24	5. 31	13. 53	2. 86
20	53. 86	19. 92	11. 24	5. 22	13. 42	2. 71
21	50. 94	18. 91	10. 90	4. 24	12. 87	2. 58
22	50. 75	17. 38	10. 86	3. 55	12. 46	2. 39
Average	67. 92	25. 40	14. 06	7. 43	17. 45	3. 58
Median	63. 01	23. 06	12. 24	7. 27	16. 41	3. 29

Source: J. Douglas Colman, "An Analysis of the Components of Rising Costs," presented at the National Conference on Medical Costs, June 27, 1967.


TOTAL DIRECT EXPENSES
NUMBER OF HOSPITALS
21
19
17
15
13
11
9
7
5
3
1
$50
$55
$60
$65
$70
$75
$80
$85
$90


▽ Average
v Median
HOTEL SERVICES
NUMBER OF HOSPITALS
21
19
17
15
13
11
9
7
5
3
1
$15
$18
$21
$24
$27
$30
$33


NURSING SERVICES
NUMBER OF HOSPITALS
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19
17
15
13
11
9
7
5
3
1
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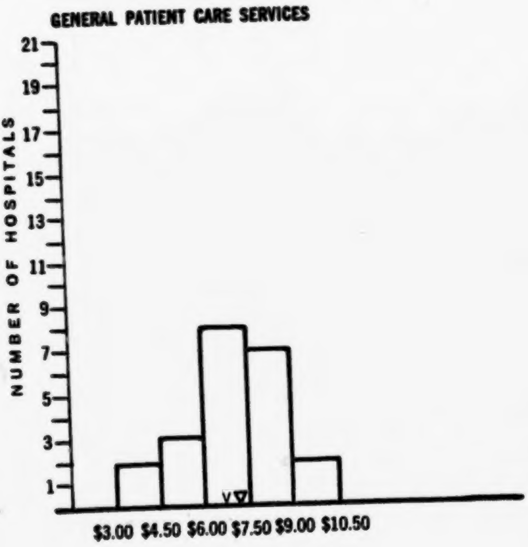
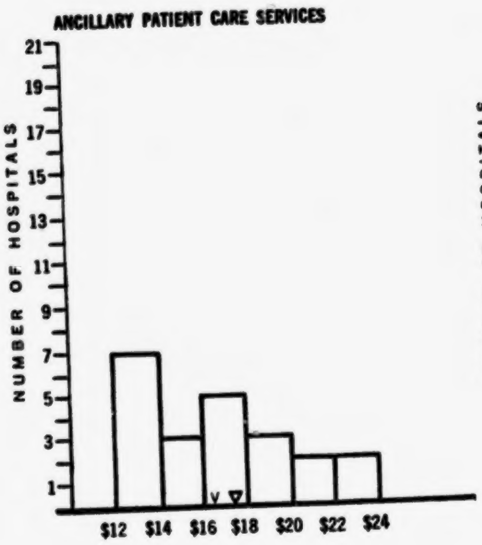
$12
$14
$16
$18
$20


GENERAL PATIENT CARE SERVICES
NUMBER OF HOSPITALS
21
19
17
15
13
11
9
7
5
3
1
$3.00
$4.50
$6.00
$7.50
$9.00
$10.50


ANCILLARY PATIENT CARE SERVICES
NUMBER OF HOSPITALS
21
19
17
15
13
11
9
7
5
3
1
$12
$14
$16
$18
$20
$22
$24

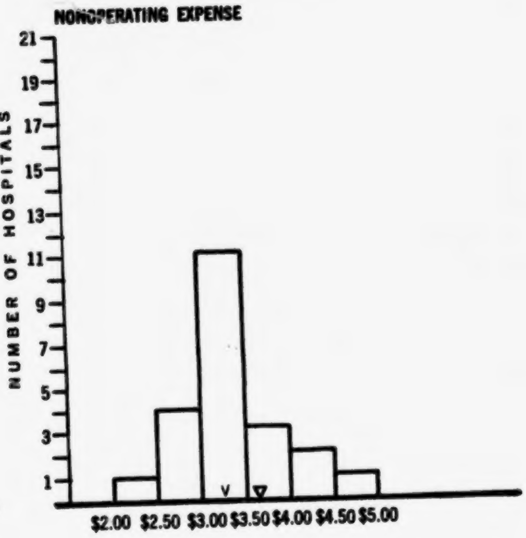

NONOPERATING EXPENSE
NUMBER OF HOSPITALS
21
19
17
15
13
11
9
7
5
3
1
$2.00
$2.50
$3.00
$3.50
$4.00
$4.50
$5.00

TABLE 2.—*Voluntary short-term community hospitals, New York City, 1965*

Rank order	Total direct expenses	Hotel services	Nursing services	General patient care services	Ancillary patient care services	Non-operating expense
1	$60.81	$27.83	$14.77	$8.88	$16.17	$4.53
2	60.43	26.75	14.33	8.34	14.71	4.15
3	59.77	26.31	14.33	8.16	14.06	3.80
4	59.53	25.90	14.02	7.96	14.03	3.43
5	59.21	24.19	13.99	7.65	13.94	3.36
6	58.87	23.95	13.78	6.64	13.94	3.35
7	58.70	23.60	13.49	6.38	13.87	3.32
8	56.92	23.51	13.34	6.13	13.63	3.18
9	56.32	23.26	13.28	6.08	13.45	3.10
10	55.00	23.26	13.13	5.91	13.37	3.09
11	54.88	22.99	12.95	5.87	12.71	3.04
12	54.45	22.63	12.95	5.64	12.27	2.98
13	53.82	21.86	12.82	5.52	12.07	2.90
14	53.19	21.58	12.57	5.44	11.84	2.82
15	52.87	20.21	12.50	5.36	11.82	2.72
16	52.35	20.02	12.22	5.11	11.61	2.67
17	52.21	19.96	12.15	5.09	11.56	2.66
18	51.07	19.86	12.13	4.67	11.50	2.64
19	51.02	19.42	12.12	4.29	11.19	2.61
20	49.93	19.24	12.12	4.25	11.12	2.59
21	49.59	19.09	11.87	4.10	10.74	2.56
22	49.56	19.00	11.77	4.05	10.69	2.56
23	48.86	18.94	11.55	3.96	10.63	2.53
24	48.46	18.71	11.53	3.79	10.56	2.43
25	47.86	18.43	11.45	3.49	10.48	2.42
26	47.67	18.35	11.41	3.39	10.24	2.40
27	46.86	18.28	11.36	3.38	10.19	2.39
28	45.92	17.87	11.35	3.19	10.10	2.38
29	45.47	17.69	11.23	3.13	9.44	2.37
30	44.91	17.50	10.54	3.08	9.43	2.33
31	44.86	17.34	10.51	2.58	9.35	2.29
32	44.82	17.32	10.35	2.52	9.34	2.28
33	43.99	17.12	30.34	2.46	9.31	2.18
34	42.91	17.08	10.29	2.44	8.89	2.17
35	42.84	16.96	10.11	2.27	8.77	2.15
36	42.54	16.94	9.98	2.20	8.45	2.13
37	41.26	16.92	9.86	2.08	8.22	2.10
38	40.72	15.64	9.46	1.89	8.12	2.09
39	40.64	15.47	9.21	1.85	7.43	2.00
40	40.45	14.71	8.86	1.53	7.39	1.91
41	39.88	14.69	8.79	1.51	5.79	1.77
42	34.05	13.34	8.41	1.01	5.22	1.60
Average	51.90	20.20	12.09	4.95	11.83	2.83
Median	49.58	19.05	11.87	4.08	10.72	2.56

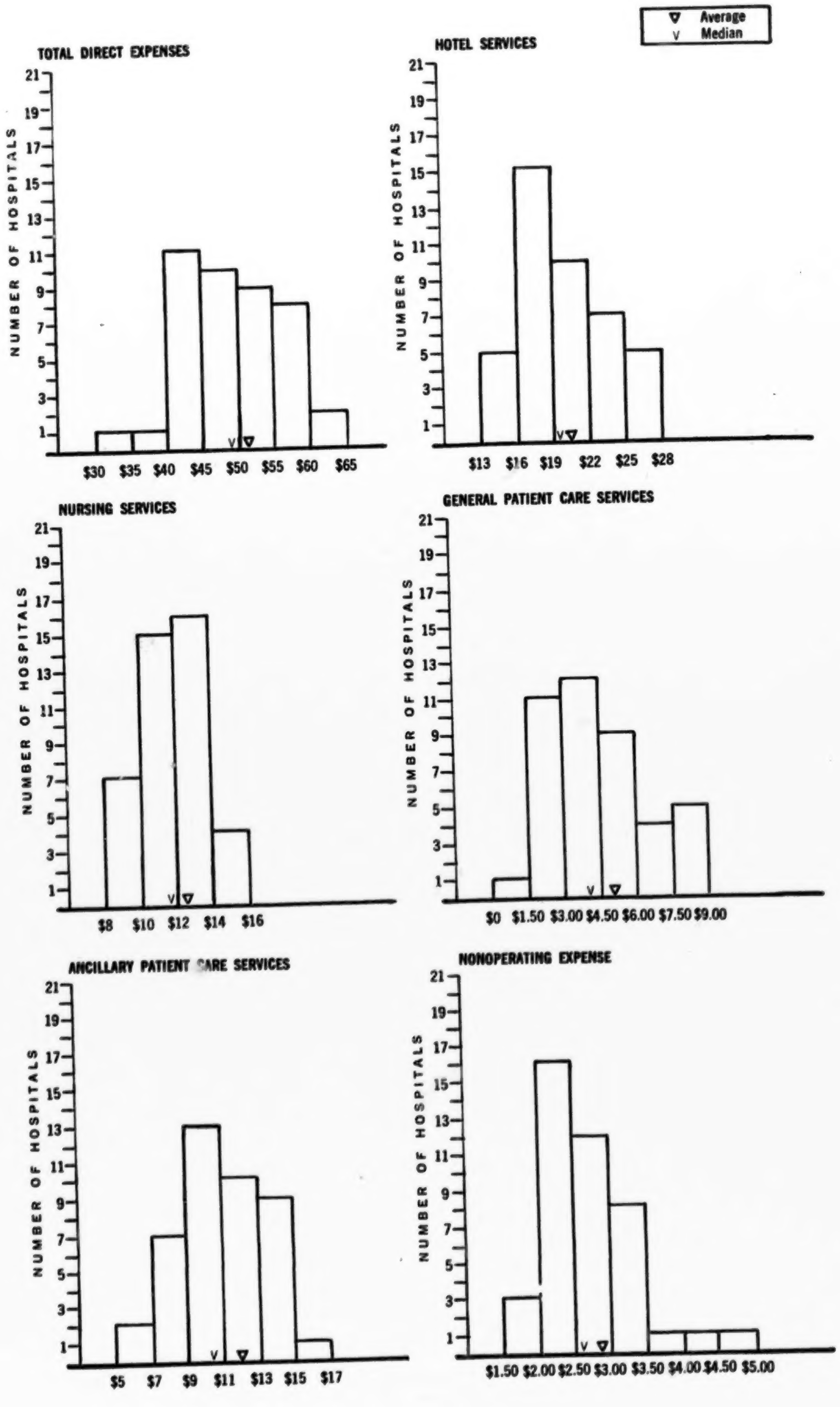
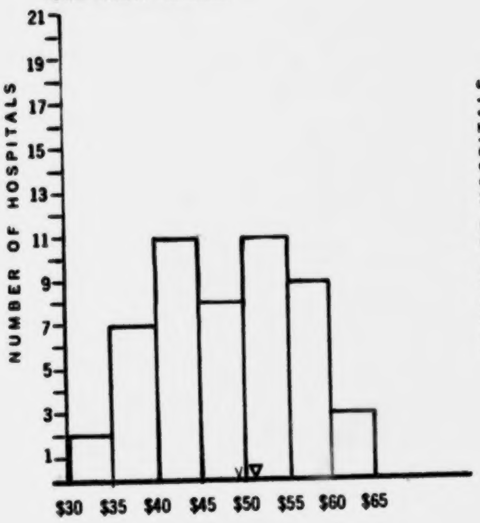

▽ Average
v Median
TOTAL DIRECT EXPENSES
NUMBER OF HOSPITALS
1 3 5 7 9 11 13 15 17 19 21
$30 $35 $40 $45 $50 $55 $60 $65
HOTEL SERVICES
NUMBER OF HOSPITALS
1 3 5 7 9 11 13 15 17 19 21
$13 $16 $19 $22 $25 $28
NURSING SERVICES
NUMBER OF HOSPITALS
1 3 5 7 9 11 13 15 17 19 21
$8 $10 $12 $14 $16
GENERAL PATIENT CARE SERVICES
NUMBER OF HOSPITALS
1 3 5 7 9 11 13 15 17 19 21
$0 $1.50 $3.00 $4.50 $6.00 $7.50 $9.00
ANCILLARY PATIENT CARE SERVICES
NUMBER OF HOSPITALS
1 3 5 7 9 11 13 15 17 19 21
$5 $7 $9 $11 $13 $15 $17
NONOPERATING EXPENSE
NUMBER OF HOSPITALS
1 3 5 7 9 11 13 15 17 19 21
$1.50 $2.00 $2.50 $3.00 $3.50 $4.00 $4.50 $5.00

TABLE 3.—*Voluntary short-term community suburban hospitals, lower 17 counties of New York, 1965*

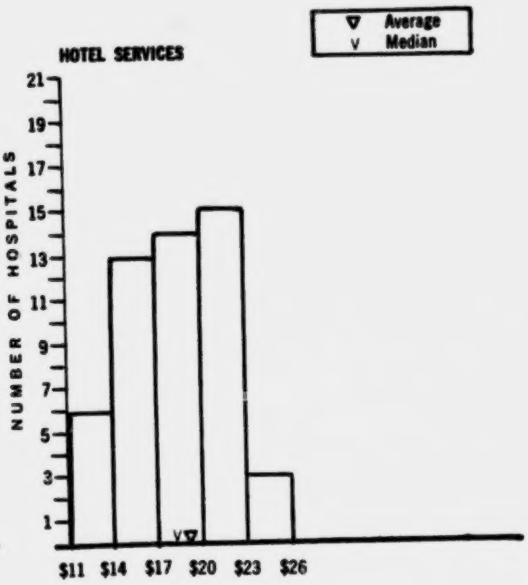
Rank order	Total direct expenses	Hotel services	Nursing services	General patient care services	Ancillary patient care services	Non-operating expense
1	$62.13	$24.72	$16.99	$5.49	$20.31	$5.77
2	60.98	24.57	15.83	4.37	19.37	4.21
3	60.73	23.35	15.54	4.19	16.53	4.09
4	57.80	22.63	14.99	4.02	16.20	4.08
5	56.38	22.43	14.86	3.57	16.09	3.72
6	56.27	22.09	14.17	3.57	15.94	3.61
7	55.95	21.66	14.00	3.50	15.81	3.48
8	55.43	21.59	14.00	3.46	15.46	3.12
9	55.15	21.45	13.97	3.43	15.03	3.11
10	54.65	21.02	13.83	2.95	14.97	2.81
11	54.15	20.97	13.74	2.95	14.86	2.80
12	54.05	20.82	13.50	2.92	14.77	2.74
13	53.62	20.75	13.32	2.80	14.67	2.74
14	52.88	20.70	13.32	2.74	14.63	2.62
15	52.78	20.60	13.31	2.74	14.44	2.57
16	52.37	20.39	13.03	2.50	14.28	2.55
17	51.70	20.21	12.98	2.50	14.09	2.52
18	51.33	20.12	12.87	2.35	14.08	2.50
19	51.28	19.44	12.60	2.26	13.77	2.48
20	51.12	19.38	12.58	2.26	13.69	2.47
21	51.08	19.09	12.58	2.24	13.56	2.43
22	50.51	19.05	12.50	2.23	13.49	2.42
23	50.23	19.05	12.39	2.17	13.37	2.41
24	49.98	18.55	12.29	2.09	13.27	2.40
25	49.57	18.31	12.14	1.96	13.07	2.33
26	49.37	18.29	11.99	1.87	12.99	2.32
27	49.33	18.18	11.91	1.85	12.89	2.31
28	49.12	18.11	11.86	1.82	12.85	2.15
29	48.50	17.92	11.76	1.77	12.25	2.15
30	46.00	17.84	11.73	1.59	12.21	2.15
31	45.87	17.59	11.71	1.44	12.19	2.15
32	44.78	17.49	11.70	1.43	12.17	2.14
33	44.52	16.93	11.52	1.40	11.95	2.12
34	43.84	16.42	11.31	1.28	11.76	2.06
35	43.67	16.40	11.22	1.18	11.51	2.04
36	43.39	16.38	11.16	1.13	11.30	2.04
37	43.03	16.35	11.10	1.06	11.29	2.01
38	42.98	16.17	10.88	1.02	11.28	1.95
39	42.40	15.99	10.86	.86	11.15	1.94
40	42.13	15.99	10.83	.84	11.04	1.90
41	41.66	15.96	10.69	.84	10.76	1.90
42	41.01	15.91	10.68	.78	10.65	1.88
43	39.77	15.45	10.53	.74	10.57	1.83

TABLE 3.—*Voluntary short-term community suburban hospitals, lower 17 counties of New York, 1965*—Continued

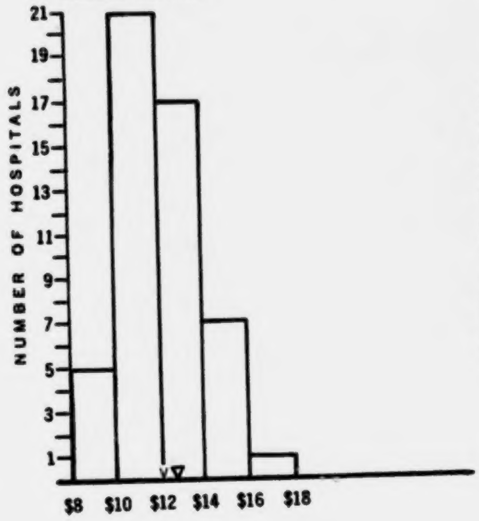
Rank order	Total direct expenses	Hotel services	Nursing services	General patient care services	Ancillary patient care services	Non-operating expense
44	$39. 27	$15. 23	$10. 37	$0. 72	$10. 17	$1. 83
45	38. 16	14. 94	10. 32	. 63	9. 76	1. 80
46	36. 61	13. 45	10. 25	. 61	9. 74	1. 75
47	36. 38	13. 40	9. 56	. 59	9. 68	1. 58
48	35. 67	13. 23	8. 88	. 57	9. 34	1. 58
49	35. 38	12. 76	8. 67	. 47	9. 00	1. 53
50	34. 63	11. 74	8. 67	. 40	8. 08	1. 52
51	31. 18	11. 34	8. 31	. 38	7. 36	1. 39
Average	50. 39	19. 10	12. 69	2. 51	13. 41	2. 68
Median	49. 37	18. 29	11. 99	1. 87	12. 99	2. 32



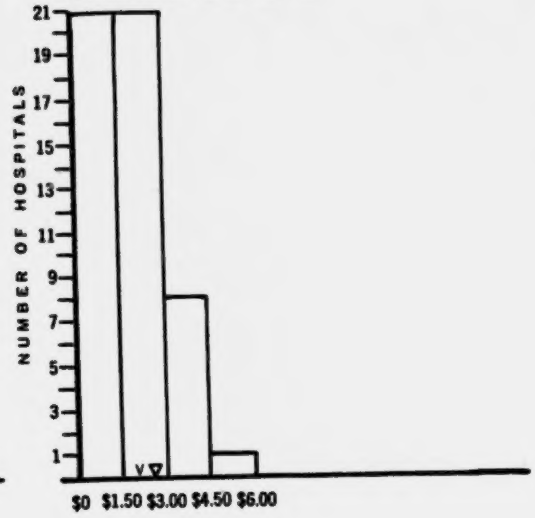
TOTAL DIRECT EXPENSES



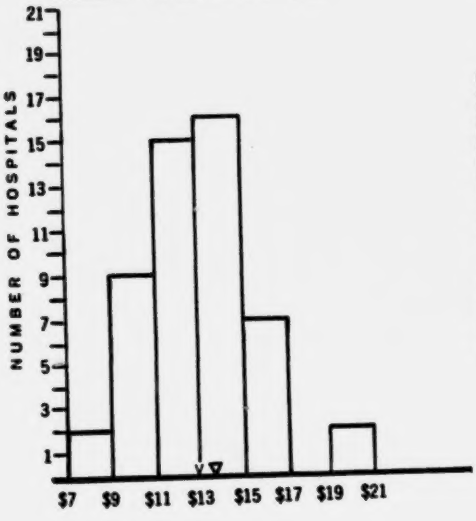
HOTEL SERVICES



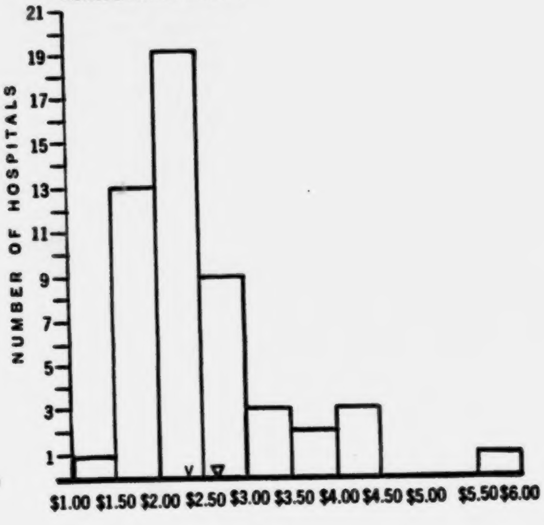
NURSING SERVICES



GENERAL PATIENT CARE SERVICES



ANCILLARY PATIENT CARE SERVICES



NONOPERATING EXPENSE

Appendix III

Report of the Panel on the Consumer Role in the Health Care System

Dr. Peter H. Rossi, *Chairman*
Director, Department of Social Relations
The Johns Hopkins University
Baltimore, Maryland

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Vice President
Employee Relations
Douglas Aircraft Corporation
Santa Monica, California

Mr. James G. Patton
James G. Patton & Associates
Tucson, Arizona; Former President National Farmers Union
Denver, Colorado

Dr. Jerome Pollack
Associate Dean for Medical Care Planning
Harvard Medical School
Boston, Massachusetts

Dr. Samuel R. Sherman
Physician
San Francisco, California

Mrs. Anne Somers
Research Associate
Industrial Relations Section
Princeton University

Mr. Harry S. Stone
Executive Vice President
American Greetings Corporation
Cleveland, Ohio

Mr. Jon D. Miller, *Staff*
American Hospital Association
Chicago, Illinois

Introduction

Every individual, as a consumer of health services, has a large stake in the quality and availability of health care. The ways in which consumer interests manifest themselves have increased and changed almost beyond recognition in the past few decades. In addition to the obvious role of patient, the individual now must deal with health issues as citizen, employer or employee, member of prepaid plan, and occasionally, board member for a health and welfare plan or a voluntary hospital.

Only a few decades ago the total consumer role for most people consisted of participating in the doctor-patient relationship. This relationship was generally an authoritarian one in which it was assumed that the patient would take his medicine and submit to surgical intervention without asking questions. Medical care was purchased as needed. There was little specialization within medicine and few hospitals provided anything beyond nursing care and facilities for surgery. Both the quality and the price of health care were low by today's standards.

During this earlier period, most health care purchases and many health policy decisions were made directly by the individual consumer. The Federal Government provided only a minute fraction of the Nation's health care, with State and local governments involved mainly in the operation of local and special-purpose hospitals. Industrial health plans were in their infancy and the few that existed were run on a unilateral basis by paternalistic employers. Negotiations between employers and organized employees involved no health care considerations. Public-spirited citizens served as trustees of voluntary hospitals, but their role was mainly confined to fund raising.

Today, almost every aspect of this picture has changed. The overall quality of health care has improved enormously. The best health care is superb, although there are parts of the country and segments of the population that are today receiving health care not too different from that of a generation ago. Overall, extreme complexity, specialization, and high costs are now the dominant characteristics of the American health care system. The various units of government now purchase or provide over one-fourth of the health services delivered, and the implementation of Medicare and Medicaid will probably increase that proportion. Another quarter of health services are purchased through prepaid plans with the result that health care benefits have become a critical part of collective bargaining discussions. Hospitals no longer look to philanthropy as an important source of funds. The role of the voluntary hospital trustee increasingly demands a knowledge of business operations and a concern for community health care planning.

The nature of the doctor-patient relationship is as changed as the shape of the health care system itself. Better educated, more affluent, and more questioning than his father or grandfather, today's patient looks to the medical care system for a wider variety of services than previous generations. With most infectious diseases eliminated or under control, the typical child patient is increasingly brought to the doctor for preventive services and behavioral problems. Typical adult patients are likely to be more concerned with a chronic condition—hypertension, heart trouble, diabetes, arthritis—than with an acute condition. These new conditions frequently cannot be cured. The patient and his family have to learn to accept the illness or disability, how to live with it, and how to keep it under control. The patient's role in the treatment of such conditions requires more participation and understanding than did health care some decades ago.

The physician's task is increasingly one of watchful patient management. The breakdown of the more authoritarian doctor-patient relationship has caused problems for both participants. The confusion of some patients is reflected in the growth of do-it-yourself health books; in the rising sales of nonprescription drugs, vitamins, and health-food supplements; and in the frequent use of nonqualified doctors and outright quacks. The growth of these pseudo-health services indicates that important needs for health care and health advice are not being provided effectively within the present health care system.

The individual's search for satisfactory health care has been complicated by the essentially uncoordinated growth of the health care system. Programs and organizations multiply by geometric proportions with little or no planned relationship. A greater proportion of the gross national product is being devoted to health care without commensurate increases in benefits. Costs for services continue to spiral upward. Competition among uncoordinated agencies and institutions exacerbates serious shortages of services.

Despite the individual consumer's large stake in the improvement of the health care system, there are few points where he can make his needs felt and his interests understood. The ordinary market mechanisms do not provide individual consumers with sufficient leverage on the health care market to visably affect it. Since the individual purchaser of health care generally enters into the health market only on an episodic or emergency basis, it is difficult for him to evaluate and choose among alternative sources of services. The evaluation of health services has become a scientific matter beyond the expertise of most consumers. In addition, there are many important community health services—sanitation, environmental pollution, communicable disease control—of which the individual may be largely unaware but which contribute heavily to his well being. Hence, the individual consumer of health services is not presently able to articulate his interests in a delivery system to meet his changing needs.

Increasingly, health care is being purchased for groups of individuals through health and welfare funds or through other prepaid health care programs. Some of these group consumers purchase sufficient quantities of health services so as to be able to evaluate the performance of the total system. Many of these large groups have been able to translate their knowledge of the whole complex into meaningful gains for their individual members. Most health and welfare funds, however, are not large enough to develop either adequate knowledge or sufficient leverage to significantly increase their effectiveness. The normal pressures of management and union leadership in smaller plans frequently rule out adequate monitoring of health care benefits.

Today, the opportunities for participation in health policy decision-making by either individual or group consumers are relatively slight. Rising levels of education and income, however, have stimulated greater consumer interest in the delivery of health services. Consumers are now asking for full partnership in the determination of broad health policies. Opportunities for meaningful consumer participation in shaping the health care system of this country must be significantly increased. Actions will be required to increase the opportunities for consumer participation in government programs, in quasi-public agencies, and in private health care institutions.

It is to the foregoing aspects of the consumers' roles that our Panel has addressed itself. During six sessions in three different cities we have discussed these problems with spokesmen from some 20 different public and private organizations including representatives of government, industrial management, organized labor, health insurance industry, prepayment plans, health and welfare funds, the medical profession, hospitals, and private consultants. We were deeply impressed with the earnestness and competence of these men and women. We gratefully acknowledge their assistance.

As a result of this testimony and our own deliberations, we have concluded that the consumer's role and his welfare can be substantially furthered by action in three major areas:

1. Improvement in the ability of the consumer to maintain his own health and to find comprehensive health services.
2. Expansion of the opportunities of meaningful consumer participation in health policy deliberations.
3. Government actions to develop and implement standards of quality for professional and institutional services, to encourage the development of a rational system of health facilities, and to guarantee the adequacy of health insurance benefits and plans offered for sale.

These areas of concentration should not be construed as a comprehensive list of the consumer's needs and desires, but rather as a point from which the first steps can be taken toward providing full partnership for the consumer in the health care system.

Strengthening the Position of the Consumer

The changing circumstances of American health care described in the Introduction point to new roles for the consumer. The first and primary role for the consumer will continue to be his participation in the doctor-patient relationship—the locus of delivery for most health services. The changing nature of this relationship will require renewed and imaginative efforts to educate every consumer of his rights and responsibilities in this partnership. At the same time, programs must be developed to provide more accessible entry points at which individuals can secure comprehensive health services.

The second, and increasingly important role for the consumer will be expanded participation in the determination of broad health policy. The scope of health issues has grown to the point that most of the major debates now involve questions closer to public policy than to the specialized competence of the health professional. The solution lies in building a creative partnership between consumers and providers rather than establishing the supremacy of either.

The first steps toward this partnership will require the sponsorship of training programs for consumer and public representatives. Additional efforts will be necessary to open positions for consumers on appropriate decisionmaking bodies and for assisting in the development of organizations which represent the consumer and the public interest.

In terms of the first of these roles—the consumer as patient—greatly expanded efforts are needed to educate individual consumers about the maintenance of their own health and about effective use of the existing health care system. Most of today's health education efforts are directed through the schools, with some secondary efforts directed at the public communications media. It is necessary to recognize at the outset that the present curricula and methodologies of health education have been largely unsuccessful. Federal funds devoted to this area should stress innovation, experimentation, and measures of effectiveness. The targets of new health educations efforts should include the improvement of the consumer's knowledge of the factors critical to his own health, the development of greater consumer awareness in selecting a doctor, the expansion of the consumer's knowledge of available health services, and the further development of his rights and responsibilities as a consumer of health care.

Recommendation No. 1:

Private health agencies, professional associations, educational institutions, and other groups should, with financial and technical assistance from the Department of Health, Education, and Welfare, sponsor continuing programs of health education aimed at the general public.

The twin forces of increasing demand for health services and the growing specialism of the health professions have introduced new difficulties into the process of finding comprehensive health services. In many areas comprehensive health care is not available; in other areas, these services may be located only with great effort and secured at high prices. The consumer strongly desires and badly needs more entry points at which he and his family may secure high quality, comprehensive health care. In order to moderate the present trends toward increased specialism and to alleviate the difficulty of securing comprehensive health services, the Federal Government should provide substantial financial assistance for training and research programs directed at the development of comprehensive family health services.

Recommendation No. 2:

A new grant program for the support of research and teaching of family medicine should be established in the Department of Health, Education, and Welfare. Oriented around the health education activities of universities and their teaching hospitals, community hospitals, and organized health care plans, this program should sponsor—

(1) The development of health manpower to staff a system of comprehensive health services, and

(2) Experimental programs for the organization and delivery of comprehensive health services.

The consumer's second role—participant in health policy determination—will require a commitment to a meaningful consumer partnership by all levels of government and by quasi-public and private health institutions. It is to be expected that government—already representative of consumers in the broadest sense—should take the lead in providing for consumer participation in the decisionmaking processes within relevant departments and agencies. The recent enactment of several pieces of landmark health legislation by the Congress affords a unique opportunity for Federal leadership by providing for substantial consumer participation in the implementation of these new programs.

In the case of quasi-public and private health institutions, every effort should be made to persuade these organizations of the mutual value of consumer participation. After a reasonable period of time, however, those groups with significant public financial support or exceptional legal privileges should be required to afford consumers a voice in their policymaking bodies.

Recommendation No. 3:

All organizations and institutions involved in the purchase of, delivery of, or payment for health services should expand the opportunities for consumer participation in policy deliberations.

3A. Every level of government—Federal, State, local—involved in the provision of health services should seek to expand the opportunities for full consumer participation in policy discussions. The Federal Government should provide an example by establishing Health Advisory Councils to the Secretary of Health, Education, and Welfare; the Director of the Office of Economic Opportunity; and the Administrator of the Veterans' Administration.

3B. Voluntary nonprofit prepayment plans should be required, as a condition for retaining their special legal privileges, to provide for the equal representation of subscribers, providers, and public representatives on the policymaking body of that organization. Rules requiring limited tenure of office should also be adopted.

3C. Health facility planning councils should be required, as a condition for receiving any Federal financial assistance, to provide for for the equal representation of providers, consumers, and public members on their governing boards. The periodic rotation of board members should be required.

3D. Insurance companies should establish advisory boards within their health insurance departments providing for the representation of subscribers, providers, and public members.

3E. Voluntary hospitals should be encouraged to provide for consumer representatives on their governing boards.

At the same time that expanded opportunities are made available for consumer participation in health policy deliberations, efforts must be undertaken to improve the knowledge of consumer and public representatives about the dimensions of the total health care system. One of the unfortunate results of the absence of consumer representation in the past is that few consumer representatives have had any significant experience in the health care area. In addition, many consumer representatives already bear heavy burdens in leading their local union or managing their business operations and cannot be expected to have developed a knowledge of health care institutions when they have had no practical use for such information. In short, the expansion of new opportunities for consumer participation will require the training of new consumer representatives and the retraining of present consumer leaders.

Recommendation No. 4:

The Federal Government should establish a grant program to sponsor training programs for persons elected or appointed to trustee or board member positions in health care institutions and organizations. Such programs should be developed in cooperation with universities, professional associations, and health agencies and conducted on regional and areawide bases.

A further result of the absence of consumer representation in the health care system is that few consumer groups have developed an internal competence for assessing or evaluating the organization or adequacy of health services. Some of the giant industrial and union organizations have developed exceptionally competent staffs, but the vast majority of unions, employers, and health and welfare funds have not been able to finance the development of these skills.

In contrast, the health professions and other provider groups have developed effective organizations to protect their interests. Similarly, insurance companies and other types of prepayment plans have established powerful national associations to represent their concerns. Only the consumer remains essentially unorganized and unrepresented in the determination of health policy.

To develop effective consumer organizations, both financial and technical assistance will be necessary. In many instances, existing organizations will be sufficiently large and interested to act as consumer representatives or as forums for the consideration of area health policies. In other cases, the simple economics of time and dollars will dictate that new organizations be formed to allow the sharing of resources by several groups, each too small to support a separate health care staff for its own purposes. These organizations—both old and new—should be assisted in undertaking studies of their own needs and in participating in studies of the needs of their community and their region. Emphasis should be placed upon building a competence among the organization's leadership to evaluate health services and to participate as consumer representatives on local boards and councils involved in health care. Finally, these groups should be aided in undertaking broad programs of health education for their total membership.

These organizations, acting as the centers for the development and expression of consumer interests, should provide a critically needed structural foundation from which meaningful consumer participation in health decisionmaking can grow. Ultimately, these organizations should be the counterparts of today's professional associations in the development of a creative consumer-provider partnership.

Recommendation No. 5:

The Federal Government should establish a new program providing technical and financial assistance to nonprofit health care organizations for the purposes of sponsoring studies of the cost, quality, accessibility, and organization of health care services and facilities; conducting training programs for trustees and board members of health care institutions and organizations; providing technical assistance in the negotiations of health care benefits in connection with employee benefit plans; participating in local, State, or regional planning programs; performing clearinghouse functions for health information; and sponsoring conferences, seminars, and similar programs of public education. Organizations eligible under this program should include:

1. *Groups of employees, or*
2. *Groups of employers, or*
3. *Groups of employees, groups of employers, professional associations, hospitals, planning councils, and similar health care organizations.*

Both existing and newly formed organizations fitting the above definitions should be eligible for participation in this program.

The Development of Standards

The ultimate interest of the consumer is the availability of high-quality comprehensive health care. Critical to this concern is the development of standards by which the quality of health services and health facilities can be evaluated. The development of satisfactory standards of quality will require the close cooperation of government, consumer representatives, and professional representatives. The importance of the task demands that efforts be initiated at the earliest possible date to develop standards for those areas where no acceptable indices of quality now exist.

Further, once acceptable standards of quality are developed, those units of government that are responsible for the purchase of, or payment for health services should require compliance with those standards as a condition for participation. The application of the two most important existing standards of quality—accreditation and certification—is required in the Medicare program. The Federal Government should provide leadership by example through the extension of these requirements to all other health services purchased or paid for with Federal funds.

Recommendation No. 6:

The Federal Government should require the application of existing standards of quality (accreditation, certification) to all of its programs resulting in the delivery of health care to individuals. In addition, the Department of Health, Education, and Welfare should be assigned the responsibility for developing, in cooperation with appropriate professional and institutional groups, additional quality criteria for those areas of health care where insufficient standards or no standards now exist.

As the more sophisticated and complex health operations move into institutional settings, the development of an integrated system of health facilities becomes increasingly important to the quality of those services. The coordination of health services and facilities serves to assure that the most competent personnel and the most modern equipment available will be utilized in the provision of that service. Several states have become concerned about this situation and some—particularly New York and New Jersey—have taken steps to curb the uncoordinated establishment and expansion of health facilities and health services.

The Federal Government—more than any other single institution—possesses the ability to significantly further this development by requiring that each State develop a coordinated plan and authorize appropriate enforcement powers. The recently enacted Comprehensive Health Planning Act was a first step in this direction. It is now necessary to take the second step and require adequate state authority to assure compliance.

Recommendation No. 7:

All Federal financial assistance for the construction, renovation, or expansion of health care facilities should be contingent upon the enactment and enforcement of State statutory authority regulating the establishment of new health facilities and the expansion of existing health care facilities.

Finally, one of the most pervasive consumer interests is his ability to purchase the services that are available. Slightly more than two out of three Americans now have some form of hospitalization and surgical insurance, and for many individuals this coverage constitutes their total ability to pay for services. The passage of time and the increase in health care costs have combined to make many of these policies obsolete or inadequate. Further, some of these policies were inadequate at the time that they were purchased since there are no minimum standards of adequacy for health insurance policies.

In the postwar years, group consumers have been highly successful in monitoring the costs of health insurance and the proportion of premiums that are returned in the form of benefits. Individual consumers, lacking the leverage or buying power of the groups, have not been so fortunate. As a result of these differentials in buying power and the inability to monitor performance, the typical group consumer receives approximately 90 cents of every dollar in health care benefits while the individual policy holder receives less than 50 cents out of his premium dollar in benefits. As a fundamental part of consumer protection, State governments should expand their regulation of health insurance carriers to consider the reasonableness of premiums charged and benefits returned.

Recommendation No. 8:

State insurance regulations should be expanded to include the evaluation of the reasonableness of premiums, reimbursement rates, and claims control, and the adequacy of benefits for all health insurance plans that fall under State regulation. State agencies responsible for insurance regulation, in cooperation with appropriate State health officials, should publicize the bases for evaluating alternative health insurance benefits.

Summary of Recommendations

Recommendation No. 1:

Private health agencies, professional associations, educational institutions, and other groups should, with financial and technical assistance from the Department of Health, Education, and Welfare, sponsor continuing programs of health education aimed at the general public.

Recommendation No. 2:

A new grant program for the support of research and teaching of family medicine should be established in the Department of Health, Education, and Welfare. Oriented around the health education activities of universities and their teaching hospitals, community hospitals, and organized health care plans, this program should sponsor:

1. The development of health manpower to staff a system of comprehensive health services, and
2. Experimental programs for the organization and delivery of comprehensive health services.

Recommendation No. 3:

All organizations and institutions involved in the purchase of, delivery of, or payment for health services should expand the opportunities for consumer participation in policy deliberations.

3A. Every level of government—Federal, State, local—involved in the provision of health services should seek to expand the opportunities for full consumer participation in policy discussions. The Federal Government should provide an example by establishing health advisory councils to the Secretary of Health, Education, and Welfare; the Director of the Office of Economic Opportunity; and the Administrator of the Veterans' Administration.

3B. Voluntary nonprofit prepayment plans should be required, as a condition for retaining their special legal privileges, to provide for the equal representation of subscribers, providers, and public representatives on the policymaking body of that organization. Rules requiring limited tenure of office should also be adopted.

3C. Health facility planning councils should be required, as a condition for receiving any Federal financial assistance, to provide for the equal representation of providers, consumers, and public members on their governing boards. The periodic rotation of board members should be required.

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Recommendation No. 5:

The Federal Government should establish a new program providing technical and financial assistance to nonprofit health care organizations for the purposes of sponsoring studies of the cost, quality, accessibility, and organization of health care services and facilities, conducting training programs for trustees and board members of health care institutions and organizations; providing technical assistance in the negotiations of health care benefits in connection with employee benefit plans; participating in local, State, or regional planning programs; performing clearinghouse functions for health information; and sponsoring conferences, seminars, and similar programs of public education. Organizations eligible under this program should include:

1. Groups of employees, or
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Dissenting Remarks

ANNE R. SOMERS

While sympathetic with the general thrust of this report, I find it necessary to dissent with respect to several specific recommendations.

Recommendation 3C. As a member of a state health facilities planning council, I agree completely as to the need to broaden the membership of these councils and make them more fully representative of the total community. I do not believe this can be achieved, however, by imposition of the same tripartite formula recommended for the Blue plans.

The two types of organizations are entirely different in their relations with "consumers." It is possible to identify Blue Cross subscribers and to distinguish them from the general public. I see no way of establishing a meaningful distinction between "consumers" and "the public" in the case of hospital planning bodies.

Moreover, experience proves that it is extremely difficult to find qualified persons willing to serve on planning councils, who are not in some way connected with hospitals, nursing homes, or the medical profession. Such people must be developed. The councils should be prodded and helped in every possible way to broaden their membership.

But nothing would be gained by simply stacking the councils overnight with uninformed persons. At this stage in their development, to make this rigid representation formula a condition for continued receipt of Federal funds would be to kill or destroy the effectiveness of at least two-thirds of the councils. This is not the way to encourage broader community participation in planning.

Recommendation 3E. This recommendation is meaningless. Most voluntary hospital boards are already made up largely of "consumers," at least in the sense that they are nonproviders. The bank president is a consumer just as much as the union officer.

The boards are, by and large, not adequately representative of the total community but that is a different point. Some authorities also feel they are not adequately representative of the medical profession and would like to see medical staff members accept positions as trustees.

The problem is far more complex than any such facile solution would suggest. The whole nature of the voluntary hospital has undergone a major transformation in the past few decades. It is now clearly a public trust—if not a public institution. A new legal status, more in harmony with the de facto situation—perhaps some form of public utility—needs to be developed. Hospital ownership, policymaking, planning, management, professional relations, and public regulation are all involved.

The whole subject needs thorough and objective study. I would like to see a major study of this type undertaken in the near future. But I do not believe that platitudinous statements or superficial "cures" are helpful.

Recommendations 2 and 5. I will comment on these two jointly since there seems to be considerable overlap. If I understand them correctly, two broad new federal grant programs are requested to carry out the following activities: (a) studies and experimental programs in the organization and delivery of health services (2 and 5), (b) the development of health manpower—presumably with emphasis on the paramedical professions (2), (c) research and teaching of "family medicine" (2), (d) training programs for trustees of health institutions and planning bodies (5), (e) technical assistance to employer and employee groups in the negotiation of health care benefits (5), (f) sponsoring conferences, seminars, and similar programs of health education (5).

Virtually any form of nonprofit organization interested in health—consumer or provider—would be eligible under one or other of the programs.

I agree that all of these activities are worthwhile, but I am not sure that Federal subsidy is needed for all. And I disagree as to the necessity of "new" programs in all these areas.

With respect to the six activities listed, it seems to me that the Public Health Service already has program authority in two—manpower development and health services research. What is needed is stronger implementation and, especially in the case of health services research a significant expansion of the existing program, including much more adequate funding. The administration has recently requested a $20 million expansion of this program, and I feel it would be far more useful to give strong endorsement to this request rather than confuse the issue by asking for another "new" program.

In the case of three more of the specified activities, the requested Federal support is contained—either explicitly or implicitly—in other recommendations of this panel. The training program is requested in No. 4. To repeat it here is confusing. The proposal for conferences and "similar programs of public education" is, or should be, encompassed in No. 1.

Technical assistance is not specifically included in No. 4, but it would seem appropriate to do so. Both training and technical assistance are forms of education extension work of the type long and successfully practiced by the Department of Agriculture. It would seem appropriate to develop them jointly in the health field also. Technical assistance to health plan negotiators could also be appropriately developed under the expanded functions of the State insurance departments as recommended in No. 8.

This leaves only one of the six specific functions recommended in Numbers 2 and 5, that is not already provided for to some extent in existing Federal programs or covered in one of the other recommendations.

The proposal for a program of support for research and teaching of "family medicine" is new insofar as it would be directed primarily at changes in medical school curricula. Such a program should not be confused with one concerned with experimentation in delivery systems. The two are closely related and essential to each other. But one is concerned with the organization and financing of care, the other with the production of physicians qualified to operate within the newly developing systems of care. To concentrate on delivery systems and neglect the training and attitudes of the most important individuals who will have to man these systems would be self-defeating. I would therefore urge that this particular proposal be singled out for careful thought and development.

Some of my panel colleagues may accuse me of "nit-picking" in some of my objections. If I am for most of the activities recommended in 2 and 5, why not support the full recommendations? It is my feeling today that the health field is so cluttered with programs—public and private, Federal, State, and local—that many are not understood or even known. Many are underfinanced or poorly implemented; some are in actual conflict. Anyone concerned with the responsible organization and financing of care in the United States today should think twice or even three times before recommending the addition of another fragment to the existing chaos.

What is needed now, more than anything else, is coordination of the existing programs, more effective implementation, including more adequate funding where needed, and much more public education as to their use. Hence my strong support of programs concerned with education and technical assistance. But to add new, poorly-thought-out, programs of the type envisioned in Recommendations 2 and 5, would seem to me to further confuse the existing situation, further dilute the effectiveness of the limited number of competent labor and other "consumer" representatives available for this type of work, and injure rather than advance the health of the American people.

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Report of the Panel on Education and Supply

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Introduction

Recent social legislation, particularly the Social Security Amendments of 1965, have reflected the urgent demands of the American public for more and better health care. These demands have given rise to ferment throughout the health industry. Initially, the turmoil focused on compartmentalized problems such as the doctor shortage and the sharply rising cost of medical care, which in the past year has grown at greater than twice the rate of the consumer price index. Increasingly, however, it has become apparent that the major problem is broader and more deep-seated, residing in the fact that our system of health care is outdated and unable to meet effectively the new demands.

What system of health care there is in this country is based on the 19th century assumption that the keystone of care is the general practitioner in private practice. A cursory examination of available data, however, reveals that only 20 percent of the 260,000 practicing physicians in the United States today are general practitioners, and greater than 50 percent of them are over 55 years of age. Of the 833 general practice residency positions available in 1966 only 494 were filled, 326 of these by foreign medical graduates.[1] Clearly, the keystone has collapsed. It is also true that large segments of our population are not receiving adequate dental care, although for reasons other than a diminishing number of general dental practitioners. Ignorance and economic factors tend to prevent individuals from obtaining proper dental care. The moment of great trial is one of great opportunity: the breakdown of the current system presents an opportunity to plan constructively for the future.

Specific features of a new and comprehensive system of health care are as yet undefined, but change is certain and health manpower will have to adapt to it. Anticipated changes include (1) increasing interdependency of the various categories of health manpower; (2) the delivery of high quality comprehensive care; (3) a population base comprising an entire community; (4) increasing emphasis on the maintenance of good health; (5) a greater need for persons to fill managerial functions; and (6) an increase in third-party payment, but perhaps not on the traditional fee-for-service basis.

Because health manpower education is entering an era of change, the panel preferred to focus on problems of broad concern. The focus of discussion was on quality control, mobility, financial constraints, delivery of services, and elements of formal education. The question of supply of health manpower was considered to be of such central importance that it was analyzed by the Commission rather than by each of several panels. This panel would like to record its general agreement with the conclusions of the Commission.

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[1] "Medical Education in the United States," *Journal of the American Medical Association*, Education Number, vol. 198, No. 8, Nov. 21, 1966, p. 209.

Geographic Mobility and Quality Control

Health manpower is an essential national resource. It becomes imperative, therefore, to accept into the educational system the most highly qualified applicants, to monitor the quality of practitioners in a continuing way, and to provide practitioners with geographic mobility.

Admission Policy of Health Manpower Schools

Today, admission into health manpower schools is a somewhat haphazard process based in many cases more upon the legal residence and financial circumstances of the applicants than their intellectual qualifications. Although in recent years many of the Nation's publicly supported health manpower schools have formally relaxed or eliminated residence requirements, collectively this has had no effect on the resident to nonresident ratio of their student body. As evidence, data for the first year medical school class of 1966 reveal that out of 4,732 students entering publicly owned schools, 4,047 (or 85 percent) were residents of the State where they enrolled. In privately owned medical schools the residents totaled 1,655 (41 percent) or 4,027 first-year students.[2] It would seem unlikely that these figures reflect only student preference. A somewhat similar distribution exists in dentistry since most publicly owned schools favor applicants from their own State. In nursing, too, highly qualified applicants are now being turned away from some schools because of lack of adequate educational resources whereas other fully accredited programs report that they could accommodate increasing numbers of students.

The length of undergraduate and graduate health professional education makes it impossible to collect current data regarding influences that are significant in determining where health professionals choose to practice. Available information does, however, reveal little correlation between where they were educated and where they eventually reside. Data available for representative medical school classes between 1935 and 1950 show that only 54 percent of graduates of public medical colleges remained in the State in which they went to medical college.[3] We emphasize that in general the mobility of our population has greatly increased since 1950. More specifically, the 1950 data do not reflect the impact of the

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[2] Ibid.

[3] Weiskotten, H. G., Wiggins, W. S., Altenderfer, M. E., Gooch, M., and Tipner, A., "Trends in Medical Practice: An Analysis of the Distribution and Characteristics of Medical College Graduates, 1915–1950." JME, *35:*1071–1121, 1960.

National Intern Matching Program, established in 1951, which undoubtedly increased the mobility of medical school graduates.

It is also worthy of note that although the Northeast sector of the country has the highest physician to population ratio, it does not have the greatest concentration of medical schools (22 as opposed to 30 in the South); and the overwhelming majority of schools in the Northeast are private (18 private, 4 public). A similar situation exists in dentistry. The Northeast has the highest dentist to population ratio, but only 10 schools, nine of which are private. The South, with a dentist to population ratio of 32 per 100,000 has 15 schools, only six of which are privately owned.

Examination of individual States shows the same pattern. Of the 10 States with the lowest per capita income in 1950, only three (Mississippi, Tennessee, and Louisiana) received their proportionate share of 1950 medical college graduates, this despite the fact that all 10 of these States have medical colleges.[4] These figures raise the question of whether restrictive school admission policies were ever effective devices to enable individual States or regions to fulfill their requirements for health manpower.

Certainly with the rapid increase in mobility of the entire population that is now continuing, restrictive policies do not seem appropriate for the future. It seems evident that a sustained favorable environment and other positive inducements are necessary to attract health manpower. More importantly, restrictive policies are unfair to the students, who should be granted complete freedom of choice to compete for admission on the basis of merit.

Recommendation 1. The best qualified applicants, regardless of their legal residence and economic circumstances, should be admitted to health manpower schools.

In surveying possible mechanisms with which to introduce a more orderly and fair method of student selection for all health manpower schools, the panel examined the National Intern Matching Program, which operates as a clearinghouse to assure intern placement on a free and just basis. Although initially the plan was very reluctantly accepted by the schools and hospitals, it was overwhelmingly endorsed by all concerned after 1 year of operation.

We suggest that a student matching program be instituted. Initially it should be implemented in the medical and dental schools because of the inequities caused by the proportionately large pools of applicants.

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[4] Ibid.

Thereafter, the program should be expanded to nursing schools and schools of pharmacy.

Recommendation 2. That an impartial national matching program be developed to provide an orderly and fair method of selecting students for health profession schools.

Licensure for Health Manpower

Licensing of health manpower came under the jurisdiction of the States during an era of restricted geographic mobility and of low standards of professional education. Its purpose was to protect the population from substandard care and outright quackery. The State license thus became a credential which attested that the practitioner had demonstrated an acceptable standard of competence. The necessity of such guarantees remains valid, but the practices used in the licensing of health manpower have become outmoded.

The current principles of licensure include definition of minimum formal education and practical experience requirements, plus an examination which may range from detailed technical questioning to informal personal interviews. The education requirements are based on exposure to certain required disciplines; the degree of exposure is often defined in terms of a minimum number of academic credits or hours. Practical experience is also measured almost strictly on a time-served scale. Reciprocity, too, is controlled by the individual State boards. The current method of licensing not only places direct barriers to geographic mobility, but by defining precise educational requirements for licensure indirectly inhibits the degree of flexibility and innovation possible in curriculums of health manpower schools.

The mobility restrictions are exemplified by the existing stringent State licensing laws for dentists. Although most States now accept the results of a national dental examination for theory, each State continues to control the number of dentists it licenses by requiring a practical examination regardless of the degree of competence previously demonstrated by the applicant. Furthermore, reciprocity between State boards remains extremely limited despite a series of meetings in recent years between leaders of the dental profession and State licensing officials.

In several States there is now no mandatory regulation of the practice of nursing; citizens in those States are not protected against the practice of "nurses" who fail the licensing examination, who have never been educated or whose nursing education has been terminated prior to its completion. The permissive laws in those States restrict the use of the term

"R.N.," not the practice. Although some progress is being made in having the several jurisdictions enact mandatory license laws to govern the practice of professional nursing, attention needs to be given to similar license regulations to govern practice of nursing technicians and practical nurses as well.

A national uniform licensing code would not only eliminate many of the disadvantages of individual State jurisdictions; but more importantly, it would allow for the greater mobility and freedom of choice necessary if health workers are to respond to positive inducements for correction of geographic maldistribution.

Recommendation 3. A national uniform licensing code should be developed for each category of health manpower requiring licensure to practice.

Furthermore, rather than a strict definition of minimum education and experience requirements as a basis for entrance to examination, the panel recommends that admission be granted upon certification by an accredited institution such as the university that the prospective applicants are ready to enter practice. Although the certification method has the clear disadvantage of lacking uniformity and objectivity, it introduces the flexibility necessary to take into account the varying capacities of individuals. Additionally, examination itself cannot be a complete measure of individual capabilities, and the certification has behind it the experienced judgment of responsible individuals at the institution in which the health professional was educated.

Recommendation 4. Entrance to the uniform licensing examination should be granted upon certification by the applicant's school that he or she is adequately qualified for examination.

Nursing has had some success in altering licensing procedures in an effort to increase the mobility of its practitioners. Although each State jurisdiction retains the right to designate hours of study and specific required coursework, in actual practice most States accept certification by the schools that their graduates are ready for examination. In addition, a uniform examination is now available to all jurisdictions and all subscribe to its use. Each State board, however, sets the score below which candidates for certification fail the examination. This latter practice should be critically reviewed and consensus reached concerning the minimal score acceptable in allowing a candidate to receive a license.

Health professionals, once licensed, are free to practice from that time until death. In certain other occupations, particularly those which involve responsibility for lives of large numbers of people (airline pilots, bus drivers, etc.), periodic reexamination is required to ensure that basic knowledge is retained and that personal skills have not deteriorated. Health professionals are provided with an additional challenge because scientific advances are continually altering basic health knowledge and methods of treatment. To meet this challenge, programs in continuing medical education have been developed but, unfortunately, they have been allowed to grow in a haphazard fashion, uncoordinated in time or content. In 1964 the AMA House of Delegates authorized its Council on Medical Education to proceed to develop and implement a program of accreditation for continuing education courses. The accreditation program has not been implemented because of the shortage of staff personnel.

Available information is provided chiefly through the voluntary annual listing of "Continuing Education Courses for Physicians," published by the AMA. Questionnaires are distributed to all interested institutions, reporting is entirely voluntary and there is no method of checking the completeness of the list or the quality of the reported courses. The number of physicians registered for the courses is requested, but since a number of physicians register for more than one course, there is no accurate way of translating registration figures into the total number of physicians who attend. Hence, at the present writing it is not known (1) how many continuing education courses are given, (2) how many physicians attend the offerings, or (3) what the quality of the coursework is. It can be said that 13 of our States did not report any courses for the 1966–67 academic year.[5] In the fields of nursing and dentistry not even voluntary lists exist.

A program of periodic recertification for licensure should be developed in this country and must have at its base an efficient and effective program of continuing education. Recertification might be granted by either of two methods. The health professional might accumulate a designated number of postgraduate credits during the period since he was last certified. A credit would obviously have to be defined jointly by the granting faculty and the recertification board. We would recommend that credits be required only in the specialty in which the person is actively practicing; his license or accreditation certificate, however, should designate the field. Alternatively, health profession practitioners should have the option to renew their credentials by examination. Once again, it would be inappropriate to repeat a general examination; rather, the candidate should be examined in the specific field in which he is actively practicing. The clear advantage of a recertification program is that it provides the patient with some assurance that he is getting a high standard of medical care.

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[5] "Medical Education in the United States," JAMA, Education Number, vol. 198, No. 8, Nov. 21, 1966, pp. 902–905.

In order to implement a recertification program it will be necessary to develop a mechanism whereby health practitioners can partake of continuing education for significant periods of time. Methods should be devised so that they do not suffer substantial financial losses during this time; indeed, there should be premiums placed on the maintenance of a high level of competence.

Although there will be administrative and technical difficulties in developing a system of coordinated and specialized examinations at different stages of the career, these problems should not be a barrier. A system that provides latitude for the young graduate making career choices at the same time that it provides a guarantee of quality care for the patient is too urgent a need.

Recommendation 5. That the universities involved in health manpower education be charged with the responsibility and provided full support for the development of an organized system of continuing education.

Recommendation 6. That evidence of successfully maintaining the ability to practice high quality health care be a requirement of mandatory licensure recertification of all health professionals.

Responsibility for Education

Several elements of the education of health professionals remain in large part outside of the university. Graduate medical education, e.g. internship and residency programs, is conducted under the aegis of individual hospital departments, subject to periodic review for accreditation purposes by the AMA and, in addition, by individual medical specialty boards. Because a house staff is generally considered to be necessary to a hospital's prestige, and because physicians-in-training usually perform the routine, required procedures of history-taking and physical examinations, there are many more graduate training positions than candidates to fill them. Most of the unfilled positions are located in community and private hospitals lacking a university affiliation. These hospitals are often forced to fill their vacancies with graduates of foreign medical schools.

To bring some order out of the existing situation, we believe that universities should accept responsibility for the graduate education of physicians as well as other health professionals. In this way, graduate education will become part of an educational continuum designed to prepare the health professionals to use their skills effectively.

The Millis Committee in its report, "The Graduate Education of Physicians," recognized the need to make this phase of education the responsibility of the universities and called for creation of a broadly representative commission to study the implementation of its recommendation. Achievement of the goal will not be easy. It will necessitate an increase in faculty and the development of an increased number of meaningful affiliations between hospitals and other health facilities and the university. Universities will have to learn how to decentralize such programs over wide areas, possibly over several States.

Difficult as the implementation will be, the need is so great, and our goal of improving the quality of health care is so significant, that this program must be given highest priority in planning, programing, and financial support.

In the field of nursing the primary responsibility for education has long resided outside of the university. The primary educational resource for all initial preparation of registered nurses has been the hospital controlled and operated diploma programs. With the increasing emphasis on a minimum bachelor's degree for all able youth, many hospitals conducting diploma schools of nursing have for several years experienced a decline in number of applicants. Unless college and university programs are available to students interested in nursing they will be lost to the field. This is not to say that a college degree should be required of everyone entering the field of nursing. We do feel strongly, however, that the university must take the overall responsibility for development and coordination of the various educational programs within the field of nursing.

Recommendation 7. That formal education of all health professionals, graduate as well as undergraduate, be conducted under the aegis of universities.

The Cost of Health Manpower Education

Financing of Health Manpower Students

The panel adopted as a basic proposition that in our society financial barriers to education should not exist. They do occur now at various levels, particularly at the point of entrance into professional schools. The reason for this is that the education of health professionals has certain characteristics that make it expensive; in most cases, it is chronologically long; it is usually so intensive that outside work is essentially prohibited;

and it is often followed by an apprenticeship without adequate remuneration. Medical education is a prime example and merits more detailed analysis.

In the academic year 1963–64, a nationwide survey of medical students revealed the following facts:

1. Medical students come from higher than average socioeconomic backgrounds in terms of family income and education and occupation of the fathers. The income of families of 14 percent of medical students exceeded $25,000 annually, as compared to only 1 percent of all families who attained this income level in 1963. Furthermore, whereas 36 percent of American families earned less than $5,000 in 1963, only 15 percent of medical students came from families having income at this level. Additionally, the fathers of 38 percent of medical students were professional men, 32 percent of whom were reported to have had the advantages of education beyond 4 years of college. The figures for the population as a whole are 9 and 4 percent, respectively.
2. Despite their relative affluence, more than 9,500 medical students (31 percent) reported having taken one or more loans in an effort to meet their expenses for the 1963–64 school year. These loans totaled $11.3 million.
3. One medical student in ten reported loans from three separate sources.
4. One medical student in eight reported that he did not have enough money in sight at midyear to finance his expenses for the rest of the school year. The average reported deficit was $500.
5. One medical student in eight reported carrying over college debts averaging $1,500.
6. Thirty percent of medical students reported debts averaging $2,260 at the end of the preceding school year (1962–63).[6]

We emphasize that these data in part undoubtedly reflect the result of several basic inequities occurring earlier in the education system; nevertheless, there seem to be significant financial barriers at the collegiate-professional school interface.

Traditionally, the responsibility for financing the training of health professionals has been left to the individual seeking such training. In the last few years, however, the Federal Government has provided increasing support for the training of a portion of the Nation's health manpower, notably excluding the physician and the dentist. Thus, today the financing of health education is a sometimes confused compromise of public, private, and individual support. It seems reasonable to ask whether at this time any single system would best finance health education.

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[6] Altenderfer, M. A., and West, Margaret D., "How Medical Students Finance Their Education," Publication No. 1336, USDHEW, USPHS, 1965.

At one extreme would be the total underwriting of education for health personnel by the Government. This would have the advantage of spreading the cost of educating health professionals, like the cost of health care itself, over the general population. At the same time, however, total Government financing would have difficulty recognizing the inherent differences in individual educational institutions and would tend to freeze financing into a single pattern. Although total government support of health education has worked in many Western European countries and undoubtedly would not be a total failure if tried in this country, the panel believed that other possibilities are more suited to our particular form of society.

The panel also considered whether students might elect to have the Government underwrite the cost of their education in return for a period of national service. Although this course would allow the Government significant flexibility in meeting Federal health manpower needs, it was thought that the choice between conventional debt and indentured service was an unfair one for the student to have to make. The use of indentured service as an additional option along with the plan described below was felt to be reasonable.

The method most attractive to the panel was a plan by which the Government would initially underwrite the costs of education. After graduation, health professionals would pay, as a deduction from their income, a proportional surtax toward reimbursement. Such a tax would not significantly reduce the available income that an individual would need for his family; yet it would enable his "debt" to be paid over an extended period of years. In addition, health professionals who choose less lucrative fields or geographical areas with economic levels lower than average would pay less into the fund than physicians who take advantage of the greater economic gains of other markets.

The plan has some difficulties, e.g., the possible burden on the husband of a female health professional who is in debt when she marries, or how the obligation may be discharged if a health professional chooses to leave the field. These problems are solvable, however, and could be worked into an actuarially sound program. A buy-out clause could also be developed for those who after a period of time choose to discharge their obligation quickly and completely. The proposed program would be the converse of the Social Security System: payment would be made initially by the Government and repayment by the individual would be spread over the period of his financial productivity.

Recommendation 8. That a federally administered program be developed which would allow health manpower students to distribute the costs of their education over the period of their income-producing life.

Financing of Health Manpower Schools

Education, research and services in the health area are so intimately interrelated that experience in one often has a profound impact on another. A pertinent example can be found in the consequences of Federal support of basic medical research since World War II. In part self-generated, in part a response to public clamor for solutions to disease, the Federal Government's dollar input into the scientific revolution has increased from an estimated $3 million in 1940 to approximately $1 billion in 1965. The scientific gains from this investment of public funds have been enormous. At the same time serious deficiencies have been inadvertently provoked in the education and service functions of some of our health-related schools.

Four major problems are: (1) an imbalance resulting from support of research by the Federal Government without concurrent support for teaching and service; (2) the Federal Government's failure to allow the Public Health Service to pay total costs of research programs; (3) fragmented support, directed generally to individual members of the faculty, which inhibits long-term institutional planning; and (4) short-term grants which often force schools into long-term faculty commitments, based on the hope of grant continuity.

The magnitude of the negative impact on medical schools alone may be highlighted by examining the effect of limiting the reimbursement of indirect costs of sponsored programs to 20 percent of the award despite evidence that these costs exceed 30 percent. The additional indirect costs must be paid out of the school's regular operating budget from such sources as State appropriations, general university funds, gifts, grants, tuition and endowment income. The total regular operating program expenditures for all medical schools in 1964–65 was $319,665,000.[7] Of this, however, approximately one-third, or $100 million, had to be spent to cover the 10 percent of indirect research cost not provided for by the

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[7] *Datagrams,* vol. 8, No. 11, May 1967 (Association of American Medical Colleges).

Federal granting agency. The recently developed "cost-sharing" program has led to only a partial solution of this problem.

This large dollar drain from funds for education and service becomes increasingly crucial when viewed in the light of recent legislation designed to improve the health, housing, education, and employment opportunities for the underprivileged segment of the American population. Regional medical programs, comprehensive health planning programs, community mental health programs, centers for the study, care and rehabilitation of the mentally retarded are but a few of the programs which call for the active participation of our health manpower schools. It is apparent that if the country's health-related schools are to respond to the great challenges engendered by recent social legislation, upgrade their educational programs and continue to push forward with basic research, the Federal Government must contract to pay the full costs of any of the specific programs that it sponsors, just as it does in dealing with the business sector of the economy.

Furthermore, Government-support patterns should be increasingly directed toward institutions rather than individuals. This change will enable the educational institutions themselves to determine the balance between teaching, research, and service that is most appropriate for their particular environment. This type of decisonmaking is clearly complex and should be undertaken only after considerable study by the individual institutions. In addition, planning studies can be done more quickly and efficiently if the institutions have direct, flexible and stable subsidy to underwrite the decisionmaking and startup process of new programs.

Dental education also has long been inadequately financed and many dental schools have become too dependent upon income generated by their dental clinics. This policy has resulted in a traditional overemphasis on technical dentistry and a slighting of the basic health sciences in the curriculum. As dentistry becomes increasingly involved in the basic investigation of dental disease so that it may offer comprehensive programs of dental care, it will become necessary to modify the dental curriculum to include more of the basic health sciences. As a result it will be essential for the dental schools to receive general institutional support money.

In a field where the demand for more health professionals is pressing it is inconsistent that one dental school recently found it necessary to terminate the undergraduate dental education program because of its annual financial deficit. The trend among private schools to question their ability to continue the education of dentists should be a matter of grave concern. Unless an equitable remedy for this situation is found, more non-State schools may find it necessary to curtail their operation of undergraduate dental programs. During the last 5 years, four dental schools have been transferred from private to State support. Further, it is interesting to note that all of the six developing dental schools are State schools. Little, if any, interest has been expressed by private institutions to initiate new dental schools.

Recommendation 9. That, as a matter of basic policy, all Federal funds made available to health manpower schools for restricted or specific purposes should include the entire cost (direct as well as indirect) of the programs that they are intended to support.

Recommendation 10. That general institutional support grants, containing no restrictions as to use, be made to health professional schools (medical, dental, nursing, and pharmacy) up to a level commensurate with the need for maintaining existing programs as well as for planning and implementing new programs.

If the Government does change its policy and grant full support for its projects, it might be possible to provide planning and implementing funds for the medical schools by combining the General Research Support Grant Program and the Basic (and Special) Improvement Grant Program. These funds could then be available as a "General Research and Educational Grant," distributed on a total expenditure-total student population base, and with no restrictions as to use.

Organization and Delivery of Health Services

One of the most important problems confronting the entire health field is the lack of an adequate system for the delivery of health care. The "cottage system" that exists in this country today became established during an era when proper care of the sick was regarded as a privilege rather than a right and was in large part equated with general supportive measures and "tincture of time." Late in the 1930's the explosion of biomedical advances began and it continues unabated. The impressive progress of science captivated the health professionals, the universities, the Federal Government, and the public. Scientific research was rewarded with both prestige and funds, but in the process the system of delivering the fruits of scientific discovery to the consumer was neglected. Health manpower is in short supply and is poorly distributed geographically. Job roles in the health industry are poorly defined both in regard to tasks performed and responsibility assumed. Medicine is dependent on the wholesale importation of inferiorly prepared foreign medical graduates. There is gross reduplication of expensive capital in many areas. Available modes of transportation and communication are not utilized. The emphasis remains on the care of the sick rather than on the prevention of illness and the maintenance of good health.

There are no easy answers to the multifaceted problem of how to deliver high quality health care widely to the people of this nation. Nor is it divisible into pieces which can be distributed for attack by single disciplines. The need is for a coordinated effort of experimentation and innovation, including economics, sociology, mathematics, engineering, education, psychology, anthropology, and health. The one place in our society where the resources, the freedom and the tradition of scholarly inquiry so necessary for this critical undertaking are available is the university. We strongly recommend, therefore, that both the public and private sectors of this country encourage the universities in every way possible to proceed with such inquiry. Because the problem is so complex and because we are convinced that there is no single delivery system that is best for all segments of society or all geographic areas of the country, we recommend, as has the federal government itself, that several centers for health service research and development be established within universities. These centers must be funded in a comprehensive fashion, and not limited by moneys given piecemeal. Centers should be required to delineate the methods by which experimental results are to be obtained and evaluated.

Recommendation 11. That the universities be charged with responsibility for research into problems of organization and delivery of health care to our population. Full support should be provided for this endeavor.

Formal Education

Curriculum Reform

Many and varied changes have occurred in primary, secondary, and college education since World War II. Students entering our colleges are better prepared than ever before. The colleges have responded to their needs by developing various advanced and honor programs. Indeed, the day is rapidly approaching when the majority of the biomedical sciences will be available to the student during his undergraduate career. In turn these programs are presenting more advanced students to health manpower schools. But in the aggregate, health manpower schools have not responded either in their admission requirements or in their curriculum to the demands of the times.

In the health area, education remains a lock-step process encompassing a finite period of time. Once a student embarks on his educational journey he is allowed but two alternatives: drop out, or continue. There is no opportunity for part-time study. Furthermore, in all health areas a student must meet and master every requirement designed for him. If he falls one requirement short, he is eliminated from the system. Once eliminated, there is no framework within which he may practice the skills that he has mastered, nor may he transfer his credits to meet, in part, the requirements of another of the health professions.

The student is forced to proceed through a single, somewhat narrow curriculum. He is not offered a choice of courses of study, nor does he have an opportunity to branch out to enrich his experience in any given aspect of the field. The emphasis throughout is on scientific excellence—a laudable theory which breaks down when the graduate leaves behind his formal education and finds that his training does not closely relate to the practice of his profession. The result of this educational structure is a health system with sharp cleavages among the various strata of workers and little variation within any given stratum.

It is increasingly apparent that any given health profession is now or soon will be too complex and fragmented to be effectively mastered by a single individual. Hence, the current monolithic educational system should be replaced by a flexible system which is responsive to various types of preparatory work and allows the student to prepare himself efficiently to pursue his career objectives. Several approaches to gain this needed flexibility should be studied, such as the introduction of challenge examinations at all levels of the curriculum, the introduction of a minimum common educational experience (core curriculum) supplemented by guided elective time, and the introduction of graded tracks through the various disciplines within the curriculum. The current changes occurring in nursing education exemplify the need for educational reform. In nursing there is an immediate need to inquire into promising ways to provide curricular flexibility and advanced standing procedures for graduates of diploma programs who desire to continue their formal education.

Particularly in areas where shortages exist, every means must be examined to shorten the formal education programs, provided that quality is not sacrificed. It was the feeling of the panel that careful study was needed of the educational framework, at least as early as high school. At the high school level some flexibility in curriculum now exists and it seems reasonable, therefore, to consider allowing some students to gain a degree of vocational training in a health occupation. If a high school student should elect three or four courses in some area of the health field, he or she might demonstrate by examination upon graduation sufficient competency to practice at some job level in the health industry. Several options would then present themselves: the student might work full time, work part time while going on in school, or continue his formal education on a full-time basis.

With proper correlation of high school, college, and professional school it might be possible to reduce significantly the time required to train many categories of health manpower, including physicians and dentists. One of the many proposals that merits further investigation is the possibility of reducing "basic" medical or dental education from 12 to say 10 years following the eight elementary grades. This period might consist of 4 years of high school, 4 years of college, including 2 years of biomedical science, and 2 years of clinical education. Upon this basic framework might be embroidered additional programs such as the M.D.–Ph. D., or D.D.S.–Ph. D. program for individuals whose career is basic investigation, and the M.D.–M.P.H. or D.D.S.–M.P.H. for those interested primarily in the problems of the organization and delivery of health care. We do recognize the fact that a few universities are experimenting in this vein, but feel that the effort should be expanded.

The panel did not recommend any single plan. Indeed, there is no single solution to the problem. It is clear, however, that revision of health manpower curricula to exclude unnecessary duplication is long overdue.

Recommendation 12. That health manpower schools be encouraged and fully supported to study their educational programs and to develop and implement curriculum revisions directed toward maximizing flexibility for professional development and recognizing the capabilities of the individual students.

Because the educational problems in health manpower schools are serious and have been neglected, the panel recommends that the various fragmented efforts which are currently scattered throughout several agencies in the Department of Health, Education, and Welfare be brought together into a single unit.

Recommendation 13. An agency devoted to the support of research into the educational aspects—including curriculum reform and innovative approaches to teaching and learning—of health manpower schools should be created by the Secretary of the Department of Health, Education, and Welfare.

The reasons for recommending that the office be created by the Secretary are several. First, this new agency must address itself to educational problems in all of the health professions. This means incorporating the fragmented efforts being carried out in medicine with the more coordinated endeavor of the Office of Education related to the allied health professions. Neither the Public Health Service nor the Office of Education, however, encompasses the entire problem area. Furthermore, this will be a new and vitally important effort and should receive direct attention.

New Teaching Methods

In the past decade the development of new teaching techniques has gained considerable momentum. Evaluation and implementation of programed instruction and computer methods should be encouraged. Emphasis must be placed, however, on increasing the efficiency of teaching. This demands that careful experimentation precede widespread introduction of new techniques. It may be anticipated that all phases (preclinical, clinical, graduate, and continuing) of health manpower education will benefit from these and other technological advances.

Recommendation 14. Maximum evaluation and utilization of programed instruction, computer methods, and other new teaching methods should be encouraged and financially supported in health manpower education.

The Teacher Shortage

Health manpower schools face an increasing and alarming shortage of able teachers. Complicating the problem in medicine and dentistry is the unfortunate fact that the current educational system is unable to reward adequately individuals whose primary interest is teaching. Except in extraordinary cases the only way to teach in medical and dental schools is to support oneself by doing research or by the clinical care of patients. If one chooses the research route, support comes via grants, and—quite legitimately—the individual is expected to devote most of his time to investigation. The effort-reporting requirement of the Federal Government compels a faculty member to report quarterly in writing how he is dividing his time. Because he becomes increasingly dependent on the renewal of project grants, the investigator-teacher of necessity devotes more and more time to research and less and less time to teaching. This change of direction becomes even more pronounced when the investigator-teacher quickly comes to realize that not only his financial future but his likelihood of promotion rests almost solely on his research productivity. For the teacher who chooses to support himself via the clinical care of patients the barriers to teaching are just as real. Initially, he must devote significant amounts of time to building a practice, even though he may be provided with office space and supporting personnel by the school. Once a practice begins to grow it becomes increasingly difficult to contain it to any predetermined size, particularly when it is the major source of the clinician-teacher's economic gains. (The argument holds whether the faculty system is "part time" or "full time".)

We do not mean to degrade either medical science or medical practice but rather to underline the fact that teaching interest and ability are not rewarded either in terms of economic return or academic prestige. Furthermore, the current patterns contribute to the expensiveness of medical education. With faculty members spending 50–80 percent of their time in nonteaching endeavors, a school must hire up to five faculty members to procure the equivalent of one full-time teacher.

In nursing, too, the teacher shortage has reached critical proportions. In 1962 the Surgeon General's consultant group on nursing set a "feasible" goal of 680,000 nurses by 1970. In setting this goal the consultant group commented on the limited number of available faculty in nursing schools. Since 1962 the estimates of nursing manpower needs have risen to 850,000–1,000,000, yet in 1966 there were 1516 budgeted unfilled positions reported on nursing school faculties. Four hundred of these faculty vacancies were in university baccalaureate programs—the programs expected to generate the group having basic preparation essential to graduate study for specialty practice and teaching. Additionally, the instructional manpower in the existing 74 colleges of pharmacy is in need of strengthening. At present there are some 165 vacant faculty positions (assistant professor or higher) on the faculties of our pharmacy colleges.

The temptation is to recommend that teaching be funded as a separate entity as is the case for research. Although such a specific funding program would undoubtedly initially be quite helpful to the schools, the long-term result might be a system just as rigid and just as divisive to the university as the currently restricted funding of research. A better alternative, in our opinion, would be to give the schools funds designated for faculty support—and leave to them the decision as to how teaching faculty spend their time.

Recommendation 15. That steps be taken immediately to increase the supply of teaching faculty by developing appropriate mechanisms for their support.

Report of the Panel on the Federal Use of Health Manpower

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Introduction

On June 29, 1966, President Johnson met with his newly appointed National Advisory Commission on Health Manpower. As part of his charge to the Commission, the President said,

> "I need your advice about the Federal Government's use of its health manpower: Are we setting an example for the Nation in the efficient use of health manpower? Should we establish new forms of health manpower utilization?"

A report on the selection of health personnel for military service was requested by the end of January 1967.

In organizing its own work, the Commission established a panel to study the Federal use of health manpower, chaired by Dr. James Cain, consultant in medicine at the Mayo Clinic. The Panel's first area of study was Federal procurement procedures for physicians and the impact of these procedures upon the non-Federal sectors of the Nation. Attention was focused on the relationship of the number of physicians needed and the efficiency of their use, but no special studies of Federal utilization could be undertaken.

The panel found that:

I. The available information on the numbers, distribution, and utilization of physicians is inadequate. The Panel, therefore, considered improved information systems.

II. The procedures used by the Federal Government in the procurement of health manpower need revision. Primary attention was focused on the draft of physicians, or the threat thereof, and on alternative methods of obtaining medical manpower.

III. The efficiency and effectiveness of the Federal utilization of health manpower should be the subject of continuous study by a predominantly non-Federal group. The Panel sought information on this subject but could not undertake detailed productivity studies themselves.

Regardless of the ultimate form of the Selective Service System, there are certain persistent questions that deserve consideration and analysis. The most critical of these are:

1. What is the optimal distribution of medical manpower between the military and the civilian sectors at any given point in time?
2. To what extent should the military services meet their health manpower needs through the Selective Service mechanism and to what extent through the competitive open market?
3. Assuming that some medical manpower will be called by the Selective Service System, what selection procedures can be established for minimizing the disruption of the career development of those physicians chosen?
4. After the determination has been made as to which individuals will be called, what mechanism can be developed to minimize the interference with health services provided by hospitals to civilian communities?

Background

There are 38 recognized major health occupational categories, plus numerous other occupational groups with some special applications to health. In order to provide a point of focus, this background material will concentrate primarily on the supply of physicians in the United States. Appendix A, however, contains data on other health occupations.

Supply and Distribution

Tables 1–4 describe the supply of physicians by type of practice, number graduating, regional distribution, and urban-rural distribution. Appendix B concerns physicians and population by State.

TABLE 1.—*Physician—Population ratios: 1931–65* [1]

Year	Total active physicians [2]	Per 100,000 total population [3]	Active physicians in private practice and hospital service [4]	Per 100,000 civilian population [5]
1931 [6]	150, 425	121. 2	143, 974	116. 2
1940 [6]	165, 290	125. 1	157, 148	119. 4
1949 [6]	191, 577	128. 4	175, 304	118. 8
1959 [6]	225, 772	127. 6	200, 322	114. 9
1965 [7]	277, 416	139. 2	233, 080	118. 7

[1] Excludes osteopathic physicians.

[2] Excludes retired physicians and those not in medical practice.

[3] Total population, including Armed Forces overseas, as of July 1 (in thousands): 1931—124,149; 1940—132,122; 1949—149,188; 1959—176,912; and 1965—199,256.

[4] Includes physicians in private practice, internship programs, residency programs, and in full-time hospital staff positions.

[5] Civilian population as of July 1 (in thousands): 1931—123,886; 1940—131,658; 1949—147,578; 1959—174,409; and 1965—196,366.

[6] As of July 1.

[7] As of Dec. 31.

Sources: American Medical Association, *Distribution of Physicians, Hospitals, and Hospital Beds in the U.S.*, 1966. U.S. Department of Health, Education, and Welfare, *Health Manpower Source Book*, sec. 10, 1960. U.S. Department of Health, Education, and Welfare, *Health Resources Statistics: Health Manpower, 1965*, 1966.

TABLE 2.—*Graduates of U.S. medical and osteopathic schools, 1950–66*

Year	Medical graduates	Osteopathic graduates	Total graduates
1950	5, 554	373	5, 926
1955	6, 977	459	7, 436
1960	7, 081	427	7, 508
1965	7, 409	395	7, 804
1966	7, 574	369	7, 943

Source: U.S. Department of Health, Education, and Welfare, *Health Resources Statistics: Health Manpower, 1965*, 1966.

TABLE 3.—*Non-Federal physicians and population by region, 1965*[1]

[In percentages]

Region	Population	Physicians
Northeast[2]	24.4	31.5
North Central[3]	28.3	24.9
South[4]	30.6	24.9
West[5]	16.7	18.7
All regions	100.0	100.0

[1] As of Dec. 31.

[2] Includes: Maine, Vermont, New Hampshire, Massachusetts, Connecticut, Rhode Island, New York, Pennsylvania, New Jersey, Delaware.

[3] Includes: Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, Kansas, Nebraska, South Dakota, North Dakota.

[4] Includes: Maryland, West Virginia, Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Tennessee, Kentucky, Louisiana, Arkansas, Oklahoma, Texas.

[5] Includes: Washington, Oregon, California, Idaho, Montana, Wyoming, Nevada, Utah, Colorado, Arizona, New Mexico, Alaska, Hawaii.

Source: American Medical Association, *Distribution of Physicians, Hospitals, and Hospital Beds in the U.S.*, 1966.

TABLE 4.—*Distribution of non-Federal physicians and population by county groups, 1965*[1]

	Total United States		County groups										Urban[7]	
			Greater metropolitan[2]		Lesser metropolitan[3]		Adjacent[4]		Isolated semirural[5]		Isolated rural[6]			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total physicians[8]	266,045	(100.0)	131,506	(49.4)	81,231	(30.5)	24,684	(9.3)	25,651	(9.7)	2,973	(1.1)	237,421	(89.2)
Total in private practice	179,641	(100.0)	81,588	(45.4)	55,568	(30.9)	19,729	(11.0)	20,123	(11.2)	2,633	(1.5)	159,885	(87.3)
General practice	64,957	(100.0)	24,149	(37.2)	17,113	(26.3)	10,966	(16.9)	10,464	(16.1)	2,265	(3.5)	52,228	(80.4)
General surgery	17,551	(100.0)	7,566	(43.1)	5,810	(33.1)	1,898	(10.8)	2,142	(12.2)	135	(0.8)	15,264	(87.0)
Internal medicine	22,331	(100.0)	12,105	(54.2)	6,884	(30.8)	1,539	(6.9)	1,735	(7.8)	68	(0.3)	20,528	(91.9)
Obstetrics and gynecology	12,479	(100.0)	6,197	(49.7)	4,276	(34.3)	1,010	(8.0)	970	(7.8)	26	(0,2)	11,483	(92.0)
Pediatrics	9,549	(100.0)	4,738	(49.6)	3,253	(34.1)	754	(7.9)	786	(8.2)	18	(0.2)	8,745	(91.6)
Psychiatry	8,141	(100.0)	5,516	(67.8)	2,022	(24.8)	311	(3.8)	280	(3.4)	12	(0.2)	7,849	(96.4)
Population	192,769,800	(100.0)	68,932,800	(35.8)	58,848,800	(30.5)	30,217,600	(15.7)	28,628,900	(14.8)	6,141,700	(3.2)	157,999,200	(82.0)

[1] As of Dec. 31.

[2] 109 counties in SMSA's with 1 million or more inhabitants.

[3] 301 counties in SMSA's with 50,000 to 1 million inhabitants.

[4] 889 counties contiguous to metropolitan areas. Population in such counties ranges from 500 to 508,500 inhabitants.

[5] 1,024 counties containing at least 1 incorporated place with 2,500 or more inhabitants.

[6] 758 counties not included in the above 4 groups.

[7] Includes greater metropolitan, lesser metropolitan and adjacent categories.

[8] Excludes 22,814 physicians in Federal service, 1,786 who are temporarily out of the country, and 1,234 whose addresses are temporarily unknown.

Source: American Medical Association, *Distribution of Physicians, Hospitals, and Hospital Beds in the U.S.*, 1966.

Utilization

Table 5 shows the major activities of physicians from 1931 to 1965. When the proportion of physicians in private practice and hospital service are combined, the total size of this service-oriented group has declined from 87.3 percent in 1949 to 80.9 percent in 1965.

TABLE 5.—*Physicians in the United States, by activity, 1931–65*

[In percentages]

Type of practice	Year				
	1931	1940	1949	1959	1965
All physicians	100. 0	100. 0	100. 0	100. 0	100. 0
Active non-Federal physicians:					
Private practice	85. 9	81. 6	74. 7	68. 0	62. 1
Hospital service	6. 2	8. 1	12. 4	16. 8	18. 8
Teaching, administration	1. 8	1. 9	1. 9	3. 4	6. 7
Federal service	2. 3	2. 8	6. 2	7. 4	7. 8
Not in medical practice	3. 8	5. 6	4. 8	4. 4	4. 6
All physicians (number)	156, 406	175, 163	201, 277	236, 089	290, 854

NOTE.—"Hospital service" includes interns, residents, full-time physician staff, and physicians in laboratory medicine; "teaching and administration" includes all physicians in teaching, administration, and research.

Source: U.S. Department of Health, Education, and Welfare, *Health Manpower Source Book*, sec. 10, 1960. American Medical Association, *Distribution of Physicians, Hospitals, and Hospital Beds in the U.S.*, 1966.

Federal Use

The primary Federal employers of physicians have been the Armed Forces and the Veterans' Administration. In the postwar years, the military demand has closely reflected the United States' troop strength, with significant buildups during both the Korean and Vietnam wars. Special attention will be given to the uneven nature of the military demands under the subject of procurement.

In contrast, the Federal nonmilitary employment of physicians has increased steadily during the same periods as shown in table 6. These data are not comparable with the previously cited American Medical Association data because different definitions of full time and part time employment were used, but the table provides a rough indication of the nature of Federal nonmilitary utilization of physicians in the postwar years.

TABLE 6.—*Federal nonmilitary employment of physicians, 1951–64*

Year	Number
1951	4, 669
1954	6, 085
1957	8, 948
1960	10, 098
1964	11, 232

NOTE.—These data are not strictly comparable with previously cited data from the American Medical Association because of differences in definition of full time and part time. The data on this table should be used only for the observation of a trend. Generally, the AMA data are more accurate in terms of full-time employment by the Federal Government.

Sources: U.S. Department of Labor, *Federal White Collar Workers: Their Occupations and Salaries*, June 1951. U.S. Civil Service Commission, *Occupations of Federal White Collar Workers*, June 1955, June 1958, September 1964, and the unpublished manuscript for the 1966 publication.

The distribution of the 22,814 physicians employed by the Federal Government at the end of 1965 is shown by agency in table 7.

TABLE 7.—*Physicians employed by the Federal Government, 1965*[1]

Agency	Number of physicians
Air Force	3, 872
Army	5, 036
Navy	3, 836
Public Health Service	2, 936
Veterans' Administration	6, 790
Other Federal	317
Total Federal physicians	22, 814

[1] As of Dec. 31.

Source: American Medical Association, *Distribution of Physicians, Hospitals, and Hospital Beds in the U.S.*, 1966.

Since the armed services and the Veterans' Administration are engaged primarily in the treatment of patients, the data in table 7 show that about 85 percent of Federal physicians are involved in the direct delivery of medical care.

In short, the Federal Government presently employs approximately 23,000 physicians, or about 8 percent of the national supply. The bulk of this manpower is directed to the provision of medical services, with relatively little devoted to research or teaching.

The Major Problems and Recommendations

Although increases in the productivity of medical manpower may have expanded the output of medical services, it is generally believed that there is an insufficient number of physicians to afford the minimum degree of medical service desired by the civilian population. In outlining the work of the Commission, the President summarized the problem, saying, "the national demand for health manpower today exceeds the supply and this maye be the case for several years."

The American Medical Association has also focused attention on the physician shortage in this country. At its 1966 annual convention, the Association ratified a report of the Board of Trustees declaring the existence of a "drastic shortage of health manpower." As an expression of their concern for this problem, the AMA has formed a Committee on Health Manpower to study the situation and to seek constructive solutions.

The Congress of the United States has recognized this problem and responded with the enactment of the Health Professions Educational Assistance Act of 1963 and the Health Professions Educational Assistance Amendments of 1965. The hearings and committee reports on these two pieces of legislation detail the medical manpower shortage facing the American people.

On the basis of the available evidence, it is the judgment of the Panel that the number of physicians available to serve the civilian population is at a level where no further diversions of our health manpower can be allowed, except for purposes essential to the security of the Nation itself.

The Civilian-Federal Balance

The civilian and Federal sectors are competing for health manpower to meet rising demands in both areas. The competitors are not equal, however, since the Federal Government can and does rely heavily on the involuntary mechanisms of the Selective Service, or the threat thereof, for the procurement of its medical manpower. This Nation is unquestionably committed to providing all necessary resources for those efforts essential to our defense, but the Panel's study has led it to the conclusion that some of the medical manpower procured through the Selective Service and its threat is being used for purposes not essential to our national defense.

It appears to the Panel that the provisions of health services to military dependents and to retired military personnel residing in the United

States is not essential to the national defense. In the same manner, the provision of health services to seamen, to Indians still residing on reservations, and to similar beneficiaries does not belong in the category of national defense. Finally, the substitution of the work of the Food and Drug Administration for military service raises serious questions about the Federal use of involuntary procurement procedures. The Panel does not mean to imply that any of the programs or services mentioned above are unnecessary or undesirable, but it does contend that these efforts are not critical to our national defense and that the involuntary selection mechanisms of the Selective Service System (and its threat) should not be used to provide medical manpower for these efforts.

The successful record of the Veterans' Administration in the recruitment and retention of medical manpower through the regular market channels testifies to the feasibility of that route. The Defense Department's past and current programs which utilize community health resources for the provision of dependent care illustrate another method that can replace involuntary personnel. Without detailing the alternatives available, the Panel believes that it is feasible for the Federal Government to discharge its nondefense health responsibilities without resorting to compulsory service.

The Panel could find no point within the Federal Government at which the use of health manpower is reviewed governmentwide or where the impact of Federal use on the civilian sector is assessed. The normal checks of the marketplace do not apply because of the heavy Federal use of involuntary procurement procedures. Unlike dollars, computers, and motor vehicles, all of which are controlled throughout the Federal Government, no single department is able to review, to say nothing of control, the use of health manpower since the health activities of the Federal Government are widely dispersed among departments and agencies.

In view of the scarcity of health manpower and the rising demands for it in both the civilian and Federal sectors, the Panel believes that some body must be established that can command the relevant information, review it critically, and forthrightly advise the President on the relative civilian and Federal needs and on the impact of given levels of Federal use on the Nation.

Toward this end, the Panel *recommends the establishment of a National Health Resources Council, to be appointed by the President and to report directly to him. This Council should be charged with the* *responsibility for reviewing the Federal use of health manpower and for periodically reporting to the President on:*

1. *The size of Selective Service calls for health manpower;*
2. *the size of the Commissioned Corps of the United States Public Health Service;*
3. *the establishment of health manpower ceilings for each Federal agency.*

The Efficiency of Federal Use

In view of the apparent health manpower shortage facing the Nation, the Federal Government should seek to be an outstanding example of efficiency in this area. The heavy Federal reliance on the use of the Selective Service procedures places additional responsibility on the Federal Government for the efficient use of that manpower. As a consequence, significant efforts will have to be undertaken in all areas to increase the productivity of our available supply of health manpower. Federal solutions to the problems of productivity and quality can produce beneficial results for the entire health care system of the Nation.

While the separation of Federal health activities into several departments makes overall coordination and review difficult, it affords an excellent opportunity for comparative studies of efficiency and effectiveness. Studies should also be made comparing Federal and non-Federal, governmental and nongovernmental health programs.

Toward this end, the Panel *recommends that the National Health Resources Council be charged with the responsibility for regular and periodic studies of the efficiency and effectiveness of all Federal health activities as they relate to personnel.*

A Modified Selective Service System

This Panel subscribes to the principle of selection for military service by an individual's peers at the local level. In the case of health manpower, however, the Panel finds that the present Selective Service arrangement has not preserved this principle. It requires the retention of jurisdiction over an individual by the board where he originally registered at age 18. Most medical manpower, however, is not called by the Selective Service System until after the completion of approximately 10 years of formal training beyond the high school level. Because of the relatively small number of medical schoools and the dispersion of accredited graduate training programs in medicine, the long training period is very frequently one of great mobility. As a result of these factors, the decision to call or defer a young man training in a health profession is frequently made by a local board in an area in which he has not personally lived for over a decade.

This problem is further compounded by the importance of graduate medical training to the service programs of many hospitals and by the relatively large number of local boards. The young physician taking his residency training in a teaching hospital is an important member of the medical staff. While he is learning, the physician also performs many services that might otherwise have to be performed by another physician and may be the major source of care for patients in these institutions. Since the records of each individual are kept at the point of his first registration, it frequently occurs that the members of a residency staff of any given hospital may be under the jurisdiction of numerous local boards in several different States. As a result of the uncoordinated decisions of these separate local boards, it is presently possible for an individual hospital to have a subtantial part of its residency staff called by remote Selective Service boards who know nothing about its needs.

In order to alleviate these conditions, the Panel *recommends that the Selective Service Act be amended to provide for the automatic transfer of the records of health professionals, upon graduation from professional school, from the local board of their original registration to the local board in whose jurisdiction they are employed, and for subsequent transfer when a change in employment occurs.*

The Panel also *recommends that the National Health Resources Council be charged with the responsibility for periodically reviewing the operation of the Selective Service System, the methods of selection and notification, and the timing of inductions for the purpose of minimizing the disruption of the health services of the institutions and communities involved.*

A Better Information System

The Panel found the available information on the distribution of medical manpower in this country to be inadequate. The computer file of the American Medical Association is unquestionably a valuable national resource and is by far the most accurate information available on medical manpower. Yet, even this source fails to meet the needs foreseen by this Panel since it rightly excludes Selective Service information.

If the Federal Government, or any other group, is to undertake the responsibility for reviewing and assessing the supply of health manpower for this Nation, accurate information is a prerequisite. This is particularly applicable to the planning efforts of the Federal Government itself, which presently cannot readily tabulate the numbers of physicians in its employ or report their location or utilization. In fact, this Panel found the computer file of the AMA to be more informative on the question of the total Federal employment of medical manpower than any single agency of the Federal Government itself.

This Panel is convinced that the Federal Government must commit itself to an adequate information system on the national supply of health manpower and on its own utilization of that manpower.

Toward that end, the Panel *recommends that the National Health Resources Council be charged with the responsibility for the establishment and maintenance of an automated file of information concerning the numbers, distribution, and utilization of health manpower in the United States.*

The Panel also *recommends that the records of the Selective Service System as they relate to health professionals be automated at the earliest possible date.*

Summary of Recommendations

The Panel recommends:

1. The establishment of a National Health Resources Council, to be appointed by the President and to report directly to him. This Council should be charged with the responsibility for reviewing the Federal use of health manpower and for periodically reporting to the President on:

A. The size of Selective Service calls for health manpower;

B. the size of the Commissioned Corps of the United States Public Health Service;

C. the establishment of health manpower ceilings for each Federal agency.

2. That the National Health Resources Council be charged with the responsibility for regular and periodic studies of the efficiency and effectiveness of all Federal health activities as they relate to personnel.

3. That the Selective Service Act be amended to provide for the automatic transfer of the records of health professionals, upon graduation from professional school, from the local board of their original regis-

tration to the local board in whose jurisdiction they are employed, and for subsequent transfer when a change in employment occurs.

4. That the National Health Resources Council be charged with the responsibility for periodically reviewing the operation of the Selective Service System, the methods of selection and notification, and the timing of inductions for the purpose of minimizing the disruption of the health services of the institutions and communities involved.

5. That the National Health Resources Council be charged with the responsibility for the establishment and maintenance of an automated file of information concerning the numbers, distribution, and utilization of health manpower in the United States.

6. That the records of the Selective Service System, as they relate to health professionals, be automated at the earliest possible date.

Appendix A

TABLE A1.—*Dentists in relation to population: Selected years, 1950 through 1965*[1]

Dentists and population	1950	1955	1960	1965
Total dentists [2]	87, 164	94, 879	101, 947	109, 301
Total population (thousands) [3]	152, 271	165, 931	180, 684	194, 583
Dentists per 100,000 population	57. 2	57. 2	56. 4	56. 2
Active non-Federal dentists	75, 313	76, 087	82, 630	86, 317
Resident civilian population (thousands)	150, 790	162, 967	178, 153	191, 890
Active non-Federal dentists per 100,000 civilians	49. 9	46. 7	46. 4	45. 0

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[1] As of July 1.

[2] Excludes graduates of the year concerned, but includes all other dentists, active or inactive.

[3] Includes all persons in the United States and in the Armed Forces overseas.

Sources: American Dental Association, *Distribution of Dentists in the United States by State, Region, District and County*, 1966 and prior annual issues. American Dental Association, *American Dental Directory*, 1966 and prior annual editions. U.S. Bureau of the Census, *Current Population Reports*, Series P–25, No. 327, February 1966. U.S. Department of Health, Education, and Welfare, *Health Resources Statistics: Health Manpower, 1965*, 1966.

TABLE A2.—*Number of non-Federal dentists and rate per 100,000 civilians, 1965* [1]

Location	Civilian population in thousands [2]	Number of non-Federal dentists [3]		Rate per 100,000 civilians	
		Total	Active	Total dentists	Active dentists
United States......	191, 890	102, 174	86, 317	53	45
Alabama..............	3, 438	1, 068	962	31	28
Alaska................	221	69	60	31	27
Arizona..............	1, 587	646	529	41	33
Arkansas.............	1, 950	610	529	31	27
California............	18, 299	11, 227	9, 028	61	49
Colorado.............	1, 933	1, 133	988	59	51
Connecticut...........	2, 821	1, 863	1, 590	66	56
Delaware.............	497	205	161	41	32
District of Columbia.....	787	755	628	96	80
Florida...............	5, 713	2, 834	2, 257	50	40
Georgia..............	4, 264	1, 259	1, 048	30	25
Hawaii...............	648	459	418	71	65
Idaho................	686	323	309	47	45
Illinois...............	10, 599	6, 320	5, 271	60	50
Indiana..............	4, 877	2, 216	1, 881	45	39
Iowa.................	2, 759	1, 537	1, 317	56	48
Kansas...............	2, 195	1, 007	870	46	40
Kentucky.............	3, 140	1, 156	994	37	32
Louisiana.............	3, 501	1, 290	1, 085	37	31
Maine................	975	447	366	46	38
Maryland.............	3, 464	1, 483	1, 221	43	35
Massachusetts..........	5, 309	3, 767	3, 063	71	58
Michigan..............	8, 198	4, 240	3, 830	52	47
Minnesota............	3, 549	2, 456	2, 018	69	57
Mississippi............	2, 301	628	573	27	25
Missouri..............	4, 470	2, 355	1, 914	53	43
Montana..............	696	373	337	54	48
Nebraska.............	1, 459	921	738	63	51
Nevada...............	432	181	131	42	30

See footnotes at end of table.

TABLE A2.—*Number of non-Federal dentists and rate per 100,000 civilians, 1965* [1]—Continued

Location	Civilian population in thousands [2]	Number of non-Federal dentists [3]		Rate per 100,000 civilians	
		Total	Active	Total dentists	Active dentists
New Hampshire	663	301	259	45	39
New Jersey	6, 735	4, 211	3, 543	63	53
New Mexico	1, 008	311	265	31	26
New York	18, 032	14, 250	11, 891	79	66
North Carolina	4, 821	1, 508	1, 284	31	27
North Dakota	640	280	233	44	36
Ohio	10, 227	4, 942	4, 238	48	41
Oklahoma	2, 448	958	844	39	34
Oregon	1, 894	1, 473	1, 251	78	66
Pennsylvania	11, 505	6, 603	5, 837	57	51
Rhode Island	867	488	412	56	48
South Carolina	2, 489	578	488	23	20
South Dakota	696	294	257	42	37
Tennessee	3, 817	1, 539	1, 409	40	37
Texas	10, 387	3, 814	3, 188	37	31
Utah	986	596	565	60	57
Vermont	397	190	151	48	38
Virginia	4, 294	1, 633	1, 410	38	33
Washington	2, 929	2, 025	1, 847	69	63
West Virginia	1, 811	669	600	37	33
Wisconsin	4, 140	2, 533	2, 087	61	50
Wyoming	335	150	142	45	42

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[1] As of July 1.

[2] State figures do not add to total due to rounding.

[3] Excludes graduates of the 1965 class.

Sources: American Dental Association, *Distribution of Dentists in the United States by State, Region, District and County*, 1966. American Dental Association, *American Dental Directory*, 1966. U.S. Bureau of the Census, *Current Population Reports*, Series P–25, No. 324, January 1966. U.S. Department of Health, Education, and Welfare, *Health Resources Statistics: Health Manpower, 1965*, 1966.

TABLE A3.—*Number of non-Federal dentists by county group: 1962*

County group [1]	Number of dentists	Rate per 100,000 population
United States	97, 842	53. 1
Metropolitan-adjacent	85, 201	56. 7
Greater metropolitan	45, 744	69. 5
Lesser metropolitan	28, 430	51. 5
Adjacent to metropolitan	11, 027	37. 9
Isolated	12, 641	37. 0
Isolated semirural	10, 982	39. 3
Isolated rural	1, 659	26. 8

[1] Counties within standard metropolitan statistical areas, as defined by the Bureau of the Budget, are here classified as greater metropolitan (if they are part of a SMSA of 1 million or more population) or lesser metropolitan (SMSA population of 50,000 to 1 million). Adjacent counties are counties that are not themselves metropolitan but are contiguous to metropolitan counties. All other counties are classified as isolated; semirural counties contain an incorporated place of 2,500 or more population, rural counties do not.

Source: U.S. Department of Health, Education, and Welfare, *Health Manpower Source Book*, sec. 18.

TABLE A4.—*Professional nurses in relation to population, 1950 through 1966*

Year	Resident population in thousands	Number of nurses in practice			Nurses per 100,000 population
		Total	Full-time	Part-time	
1950	150, 697	375, 000	335, 000	40, 000	249
1954	159, 825	401, 600	....	....	251
1956	165, 931	430, 000	....	....	259
1958	171, 922	460, 000	....	....	268
1960 [1]	178, 729	504, 000	414, 000	90, 000	282
1962 [1]	184, 598	550, 000	433, 000	117, 000	298
1964 [1]	190, 169	582, 000	450, 000	132, 000	306
1966 [1]	194, 899	621, 000	....	....	319

[1] In 50 States and the District of Columbia.

Sources: Interagency Conference on Nursing Statistics for 1954–66 estimates; U.S. Bureau of the Census for 1950 data on nurses (adjusted). U.S. Bureau of the Census, *Current Population Reports*. Series P–25, No. 327, February 1966. U.S. Department of Health, Education, and Welfare, *Health Resources Statistics: Health Manpower, 1965*. 1966.

TABLE A5.—*Location of active professional nurses in relation to population, 1962*

Location	Resident population in thousands [1]	Distribution A [2]		Distribution B [3]	
		Number of nurses	Nurses per 100,000 population	Number of nurses	Nurses per 100,000 population
United States	184,598	550,000	298	552,894	298
Alabama	3,317	5,224	157	5,252	158
Alaska	242	694	287	696	288
Arizona	1,486	4,972	335	4,984	335
Arkansas	1,842	2,219	120	2,223	121
California	17,029	55,240	324	55,739	327
Colorado	1,893	7,005	370	7,034	372
Connecticut	2,625	11,537	440	11,565	440
Delaware	467	1,828	391	1,836	393
District of Columbia	789	4,148	526	4,172	529
Florida	5,434	16,432	302	16,809	309
Georgia	4,083	7,924	194	7,942	194
Hawaii	693	1,998	288	2,002	289
Idaho	700	1,932	276	1,935	276
Illinois	10,098	29,371	291	29,450	292
Indiana	4,663	11,575	248	11,632	249
Iowa	2,774	8,874	320	8,926	322
Kansas	2,215	6,281	284	6,293	284
Kentucky	3,084	5,382	175	5,392	175
Louisiana	3,371	6,681	198	6,695	199
Maine	978	3,630	371	3,658	374
Maryland	3,233	7,949	246	7,976	247
Massachusetts	5,188	26,032	502	26,693	514
Michigan	8,029	21,322	266	21,465	267
Minnesota	3,461	13,285	384	13,300	384
Mississippi	2,261	3,203	142	3,213	142
Missouri	4,316	9,505	220	9,562	222
Montana	697	2,433	349	2,438	350
Nebraska	1,446	4,624	320	4,630	320
Nevada	350	917	262	922	263
New Hampshire	622	3,056	491	3,074	494
New Jersey	6,357	22,101	348	22,141	348
New Mexico	997	2,126	213	2,134	214
New York	17,498	67,830	388	67,932	388
North Carolina	4,704	10,876	231	10,889	231
North Dakota	633	2,153	340	2,156	341
Ohio	10,038	29,569	295	29,599	295
Oklahoma	2,448	4,000	163	4,008	164
Oregon	1,807	6,285	348	6,297	348
Pennsylvania	11,382	42,222	371	42,501	373
Rhode Island	878	3,473	396	3,488	397

See footnotes at end of table.

TABLE A5.—*Location of active professional nurses in relation to population, 1962*—Continued

Location	Resident population in thousands [1]	Distribution A [2]		Distribution B [3]	
		Number of nurses	Nurses per 100, 000 population	Number of nurses	Nurses per 100, 000 population
South Carolina.........	2, 448	5, 244	214	5, 254	215
South Dakota..........	721	1, 948	270	1, 957	271
Tennessee..............	3, 652	6, 473	177	6, 497	178
Texas..................	10, 122	17, 448	172	17, 485	173
Utah...................	958	2, 245	234	2, 249	235
Vermont................	387	1, 722	445	1, 732	448
Virginia...............	4, 248	9, 998	235	10, 016	236
Washington............	3, 010	10, 148	337	10, 168	338
West Virginia..........	1, 796	4, 455	248	4, 461	248
Wisconsin..............	4, 019	13, 333	332	13, 342	332
Wyoming..............	332	1, 078	325	1, 080	325

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[1] State population as of July 1, from U.S. Bureau of the Census, *Current Population Reports*, Series P–25, No. 273, October 1963; U.S. total as of Janaury 1.

[2] A portion of the 32,594 nurses not answering the question on activity status in the 1962 Inventory were presumed to be active in adjusting the total to conform with the 550,000 national estimate of the Interagency Conference on Nursing Statistics.

[3] All 32,594 nurses not answering the question on activity status in the 1962 Inventory were presumed to be active.

Sources: U.S. Department of Health, Education, and Welfare, *Health Manpower Source Book*, sec. 18, 1964. American Nurses Association, *The Nation's Nurses; The 1962 Inventory of Professional Registered Nurses*, 1965. U.S. Department of Health, Education, and Welfare, *Health Resources Statistics: Health Manpower, 1965*, 1966.

TABLE A6.—*Number of professional nurses by field of practice, 1954–64*

Field of practice	Number of nurses				Percent of nurses			
	1954	1958	1962	1964	1954	1958	1962	1964
Total	401, 600	460, 000	550, 000	582, 000	100	100	100	100
Hospitals and related institutions	240, 600	291, 500	367, 250	390, 400	60	63	67	67
Private practice	74, 000	70, 000	69, 500	66, 000	18	15	13	11
Office	35, 200	37, 000	40, 000	47, 000	9	8	7	8
Public health, including school	25, 800	28, 700	34, 700	37, 200	6	6	6	6
Occupational health	15, 800	18, 400	17, 000	18, 700	4	4	3	3
Nursing education	8, 700	12, 400	19, 550	20, 700	2	3	4	4
Other fields	1, 500	2, 000	2, 000	2, 000	1	1	(1)	(1)

[1] Less than 0.5 percent.

Source: U.S. Department of Health, Education, and Welfare, *Health Resources Statistics: Health Manpower, 1965*, 1966.

Appendix B

Distribution of physicians by State and population

Census region and States	Total number of physicians	Total in private practice	Selected specialities in private practice: General practice	General surgery	Internal medicine	Obstetrics gynecology	Pediatrics	Psychiatry	Resident population
NEW ENGLAND	19, 448	12, 183	3, 945	1, 317	1, 615	830	742	702	11, 097, 500
Connecticut	5, 063	3, 244	866	329	497	272	227	205	2, 785, 700
Maine	999	784	340	92	79	44	36	16	993, 200
Massachusetts	10, 544	6, 172	2, 020	669	805	397	353	410	5, 380, 600
New Hampshire	867	632	270	64	58	27	30	16	636, 600
Rhode Island	1, 299	949	283	123	129	65	72	40	905, 200
Vermont	676	402	166	40	47	25	24	15	396, 200
MIDDLE ATLANTIC	64, 284	41, 366	13, 671	3, 810	5, 802	3, 027	2, 271	2, 764	36, 021, 400
New Jersey	9, 081	6, 728	2, 242	655	889	538	424	290	6, 648, 100
New York	38, 601	23, 665	7, 174	2, 149	3, 626	1, 674	1, 356	1, 977	17, 696, 500
Pennsylvania	16, 602	10, 973	4, 255	1, 006	1, 287	815	491	497	11, 676, 800
EAST NORTH CENTRAL	47, 370	32, 352	12, 718	3, 172	3, 742	2, 235	1, 568	1, 224	38, 525, 300
Illinois	14, 306	9, 793	3, 946	899	1, 179	671	502	454	10, 649, 400
Indiana	4, 932	3, 819	1, 797	371	303	186	137	89	4, 929, 700
Michigan	10, 050	6, 350	2, 208	710	733	549	330	303	8, 259, 700
Ohio	13, 293	8, 894	3, 343	869	1, 146	624	440	243	10, 471, 200
Wisconsin	4, 789	3, 496	1, 424	323	381	205	159	135	4, 215, 300

West North Central	18, 863	12, 717	5, 444	1, 253	1, 467	709	519	372	15, 983, 500
Iowa	2, 883	2, 095	1, 097	202	149	92	66	47	2, 818, 300
Kansas	2, 427	1, 695	794	162	157	80	59	82	2, 268, 700
Minnesota	5, 289	3, 249	1, 316	288	442	168	131	80	3, 600, 500
Missouri	5, 522	3, 502	1, 160	380	523	259	186	119	4, 484, 800
Nebraska	1, 643	1, 232	609	122	108	67	40	28	1, 464, 000
North Dakota	565	486	221	50	55	26	19	10	640, 400
South Dakota	534	458	247	49	33	17	18	6	706, 800
South Atlantic	35, 186	22, 332	7, 659	2, 421	2, 932	1, 750	1, 357	834	28, 298, 700
Delaware	651	442	143	50	55	36	30	16	501, 300
Washington, D.C.	2, 920	1, 438	300	123	270	126	69	156	800, 200
Florida	8, 027	5, 098	1, 458	566	770	389	290	173	5, 871, 600
Georgia	4, 285	2, 962	1, 061	321	371	240	209	76	4, 203, 900
Maryland	5, 760	3, 008	932	318	388	293	195	199	3, 444, 300
North Carolina	4, 946	3, 298	1, 252	379	402	264	212	67	4, 805, 200
South Carolina	2, 002	1, 534	723	174	126	104	85	24	2, 549, 800
Virginia	4, 850	3, 273	1, 246	323	406	234	217	99	4, 331, 600
West Virginia	1, 745	1, 279	544	167	144	64	50	24	1, 780, 800

Appendix B

***Distribution of physicians by State and population*—Continued**

Census region and States	Total number of physicians	Total in private practice	Selected specialities in private practice						Resident population
			General practice	General surgery	Internal medicine	Obstetrics gynecology	Pediatrics	Psychiatry	
East South Central	11, 767	8, 495	3, 595	990	830	561	462	143	12, 480, 600
Alabama	2, 733	2, 118	891	234	212	155	131	32	3, 415, 900
Kentucky	3, 054	2, 202	985	242	224	122	102	41	3, 109, 800
Mississippi	1, 713	1, 332	698	145	89	75	59	17	2, 216, 100
Tennessee	4, 267	2, 843	1, 021	369	305	209	170	53	3, 738, 800
West South Central	19, 281	14, 267	5, 684	1, 324	1, 414	996	769	435	18, 241, 800
Arkansas	1, 691	1, 300	710	105	79	69	39	16	1, 833, 900
Louisiana	3, 973	2, 742	940	278	293	236	195	105	3, 515, 800
Oklahoma	2, 399	1, 834	787	164	178	111	73	49	2, 411, 200
Texas	11, 218	8, 391	3, 247	777	864	580	462	265	10, 480, 900

MOUNTAIN	9, 410	6, 934	2, 476	683	780	461	356	226	7, 798, 000
Arizona	1, 941	1, 428	493	135	173	90	71	41	1, 611, 000
Colorado	3, 274	2, 145	673	201	266	148	127	97	1, 985, 400
Idaho	615	548	273	53	41	29	22	6	697, 500
Montana	671	608	258	61	61	30	25	14	718, 100
Nevada	412	350	119	42	38	26	15	8	400, 300
New Mexico	894	671	213	72	84	49	42	23	1, 037, 300
Utah	1, 303	910	293	99	98	79	46	35	998, 000
Wyoming	300	274	154	20	19	10	8	2	350, 400
PACIFIC	40, 436	28, 995	9, 765	2, 581	3, 749	1, 910	1, 505	1, 441	24, 323, 000
Alaska	155	132	59	17	13	7	7	5	273, 600
California	32, 441	23, 220	7, 631	2, 002	3, 084	1, 544	1, 210	1, 230	18, 355, 800
Hawaii	901	670	215	75	77	55	57	29	730, 700
Oregon	2, 673	1, 915	698	196	246	112	79	48	1, 907, 000
Washington	4, 266	3, 058	1, 162	291	329	192	152	129	3, 055, 900

Source: American Medical Association, *Distribution of Physicians, Hospitals, and Hospital Beds in the U.S.*, 1966.

Report of the Panel on Foreign Medical Graduates

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SUMMARY

Introduction

In the circumstance that the United States has failed to produce enough physicians to meet its own needs, foreign medical graduates, defined as graduates of medical schools outside the United States, Canada, and Puerto Rico, have come to occupy an important place in medical and hospital practice in the United States. (This group includes American citizens who are graduates of foreign medical schools.) In 1965–66 foreign medical graduates constituted 28 percent of the interns and residents in approved training programs in hospitals in the United States; of all physicians newly licensed to practice medicine in the United States in 1965, 17 percent were graduates of foreign medical schools.

All available evidence suggests strongly the foreign medical graduates as a composite group have significantly lower professional competence than do graduates of American medical schools. Further evidence suggests that many foreign medical graduates returning to their countries of origin after graduate medical educational experience in the United States, are educated in such a way that they cannot properly use the additional training they have received and therefore have gained little, if any, knowledge or skills of practical value to them or to the health-care systems in their countries of origin.

The findings and recommendations of the panel are summarized in the pages which immediately follow. In the succeeding sections, there are statements which: (1) Outline the means for implementation of the recommendations, and (2) summarize the data and deliberations upon which the recommendations are based. Finally, relevant material is submitted in the appendix.

Summary of Findings and Recommendations

Findings

The panel finds:

1. There is no clear statement of the national purpose of the United States in regard to the objectives of its system of medical education.

2. The operation of the present system for education of foreign medical graduates in the United States results in serious exploitation of inadequately educated physicians for service purposes and results in inadequate graduate medical education for these individuals.

3. There is no single organization charged with the development, continuing guidance, or enforcement of policies concerning the education

of foreign medical graduates or their entry into our systems of medical education and medical care.

4. No program exists which provides reliable statistical information regarding the numbers, areas of origin, or present or future status of foreign medical graduates within the United States.

5. There is no clear, adequately supported policy regarding the role of the United States in international medical education with particular reference to its role in developing countries in supporting and expanding medical education and in providing a continuing basis for improving health services in accordance with local needs.

Recommendations

1. The panel recommends that the following general recommendations be adopted:

A. It should be the national purpose of the U.S. medical education system to provide a sufficient number of well-trained physicians and other health personnel to meet the health needs of the United States and to assist other countries, particularly less-developed countries, to improve their systems of medical education and their levels of medical practice and public health.

B. The United States should adopt as its national purpose the principle that foreign medical graduates coming to the United States be given high-quality graduate medical training, designed to fit them for medical practice in their own countries or, in the case of physicians who plan to stay in the United States permanently, designed to qualify them to fully meet the standards of medical education and health care prevailing in the United States.

2. The following changes in regard to screening procedures, orientation and educational programs, and visa policies should be adopted:

A. Present screening procedures for foreign medical graduates entering the United States should be made stricter and more demanding to insure that physicians coming to the United States for further education in medicine will have reached an educational level sufficient to allow them to participate productively in our programs of graduate medical education.

B. All foreign medical graduates entering the United States, except in special circumstances, should be given an orientation and educational program specifically designed for their needs, which will insure their proper introduction into our systems of medical education and health care, and an adequate knowledge of basic medical sciences and of our language and customs.

C. The mechanism of approval of internship and residency programs into which the foreign graduates come should be made stricter and more demanding to insure initial and continuing quality of their education.

D. Immediate attention should be given to the study and wider application of systems, not dependent on interns and residents, for providing competent and continuing medical services in hospitals in the United States.

E. The visa policies of the United States should be reviewed and revised as necessary to insure that:

(1) Foreign medical graduates coming to this country on exchange visitor visas, for programs in graduate medical education, will return to their countries of origin at the completion of these programs and that all other foreign medical graduates will be required to qualify for an immigrant visa. The issuance of immigrant visas to physicians on an occupational preference basis, who wish to work as physicians in the United States, should be restricted to those who are eligible for such work.

(2) Any foreign medical graduate applying for an immigrant visa on occupational preference basis or wishing to change from an exchange visitor visa to an immigrant visa, must clearly demonstrate a level of professional competence equivalent to that of American medical graduates.

(3) Service of foreign medical graduates in hospitals and in the United States which do not have approved educational programs should be discontinued if the foreign medical graduate does not hold a full and unrestricted state license to practice medicine.

(4) A permanent, nongovernmental Commission on Foreign Medical Graduates should be established without delay, which should function to continually study and recommend solutions to the problems of foreign medical graduates in the United States and the operation of medical educational exchange programs. This commission should consist of representatives of physicians, hospitals, educational institutions, licensing and examining boards, the Federal Government and the public.

(5) There should be established immediately a more effective method of collection, collation and dissemination of sociological and statistical information concerning activities of foreign medical graduates.

(6) The United States should immediately establish educational exchange programs to strengthen the schools of the health professions in other countries, particularly developing countries, to the end that they will eventually meet their own needs. The objective is to encourage these countries to establish or strengthen centers of educational excellence and innovation which will provide a continuing basis for improving health, education, and services in accordance with local needs.

To implement these general recommendations, the panel adds the following supplemental, specific, and special recommendations.

Specific Recommendations

Screening Procedures

(7) It is recommended that there be a stricter screening of foreign medical graduates before they are considered eligible for appointment to approved internships or residencies in the United States and, in the case of foreign nationals, before they are considered eligible for admission as physicians to the United States. To this end, it is recommended that the present examination of the Educational Council for Foreign Medical Graduates be modified and strengthened or that a new type of examination be introduced. The panel considered the elevation of the passing grade of the ECFMG to 80 or the substitution of all of Part 2 of the National Boards for the ECFMG examinations or some other similar modifications. The stricter screening procedures, like the present ones, should be applied to all foreign graduates alike, whether they are foreign nationals or citizens of the United States.

Orientation and Educational Programs

(8) It is recommended that before foreign medical graduates (either foreign nationals or citizens of the United States) are permitted to start appointments as interns or residents in hospitals in this country, they be required to participate in an orientation and training program of three to 12 months' duration, during which their competence in the basic and clinical medical sciences, in English, and possibly in mathematics and other fields would be assessed, and appropriate remedial instruction would be given. The length of each physician's participation in the program would be determined by initial evaluation of his needs or deficiencies and subsequent evaluation of his progress.

(9) It is recommended that throughout the United States, such orientation and training programs be conducted under the direction of a

consortium consisting of a medical school, with its supporting services and affiliated hospitals, and other hospitals and appropriate educational institutions in the area.

(10) It is recommended that such orientation and educational programs be given adequate financial support; Federal funds will almost certainly be required.

The panel recognizes that immediate establishment of such programs of orientation would be impossible under present conditions but notes that with stricter screening, diminution of the number of entering foreign medical graduates, expansion and financial support of such a program, implementation would be possible over a period of years.

Visa Policies[1]

(11) It is recommended that the issuance of Exchange Visitor (J) Visas be limited to graduates of foreign medical schools who have been specifically selected by their medical school faculties or other official agencies. The physicians who are selected should then participate in educational programs planned conjointly by the candidate's school and the U.S. medical school, hospital, educational institution, or regional medical school-hospital consortium, and designed to fit the candidate for practice or teaching in his own country.

(12) It is recommended that unless a physician on an Exchange Visitor visa is participating in a planned program of the sort described in Recommendation 11, his stay in the United States be limited to a maximum of three years.

(13) It is recommended that foreign medical graduates who receive Immigrant Visas on an occupational or a nonoccupational basis, or who receive Exchange Visitor visas, meet the requirements outlined in Recommendations 7 and 8 before they will be permitted to participate in any hospital or medical care activities in the United States.

(14) It is recommended that distinguished physicians (foreign medical graduates) who have been invited by a medical school or research institute in the United States to come for participation in research and teaching continue to be exempted, as they now are, from the requirements for ECFMG certification, and that they be exempted from the special visa requirements outlined.

(15) In general, it is recommended thaat the immigration regulations (and if necessary the Immigration and Nationality Act) be amended

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[1] Appendix, Items 1 and 2.

to limit the issuance of Exchange Visitor or Immigrant Visas to foreign medical graduates in accordance with restrictions described in Recommendations 11, 12, and 13. It is specifically recommended that the regulations or law be amended to provide that Exchange Visitor Visas or Immigrant Visas on an occupational preference basis not be issued to physicians until they have been certified by the Educational Council for Foreign Medical Graduates, since such physicians are not eligible for any appointment involving patient care in the United States.

(16) It is further recommended that the Department of State, Justice, and Labor regularly review existing regulations and policies concerning the issuance of visas to foreign physicians to make sure that the laws, regulations, and policies are uniform, clear, and in conformity with the national purposes described in Recommendation 1.

Service of Foreign Medical Graduates in Hospitals and Institutions in the United States

(17) It is recommended that hospitals in the United States which do not have training programs approved by the Council on Medical Education of the American Medical Association discontinue the utilization of foreign medical graduates who do not hold a full and unrestricted license to practice medicine. Further, it is recommended that foreign medical graduates not be used primarily or solely for medical service function in hospitals and institutions in the United States unless they have a full and unrestricted license to practice in that State.

(18) It is recommended that the AMA Council on Medical Education establish and enforce more stringent requirements for approved training programs, to eliminate those programs in which foreign medical graduates are utilized primarily for their service contributions, with inadequate supervision and without true educational experience.

(19) It is recommended that immediate attention be given to the study and wider application of systems not dependent on interns and residents for providing competent and continuing medical services in hospitals in the United States.

Commission on Foreign Medical Graduates

(20) It is recommended that there be established immediately a permanent Commission on Foreign Medical Graduates and Medical Education Exchange Programs. The Commission should be privately organized, it should be permanent and financed by foundations, associations, and if necessary by the government. It should function as a body to continually study and recommend solutions to the problems of the foreign

medical graduates in the United States and the operation of medical education exchange programs. This Commission should be composed, at a minimum, of representatives of physicians (American Medical Association), of hospitals (American Hospital Association), of hospital directors of medical education, of educational institutions, medical schools and universities (Association of American Medical Colleges, Institute of International Education), of the Federal Government (particularly the Departments of State, Labor and HEW), of licensing and examining boards (State Boards of Medical Examiners, National Board of Medical Examiners, ECFMG), and of the public.

(21) It is recommended that the Commission on Foreign Medical Graduates hold a national conference, and perhaps subsequently an international conference, on all aspects of the problems of foreign medical graduates.

Program on Statistical Information[3]

(22) It is recommended that the Commission on Foreign Medical Graduates, in cooperation with the Immigration and Naturalization Service, the American Medical Association, American Hospital Association, and other vitally interested groups, establish immediately a competent program which will regularly gather statistical information and data on the intake, presence, performance and fate of foreign medical graduates entering the United States, including information on both foreign nationals and citizens of the United States.

Role of the United States in International Medical Education

(23) It is recommended that an educational exchange program be established to strengthen the schools of the health professions in other countries to the end that these countries will eventually meet their own needs. The objective is to encourage these countries to establish or strengthen centers of educational excellence and innovation which will provide a continuing basis for improving health services in accordance with local needs.

(24) It is recommended that there be a rapid expansion of international research on systems of health services to meet community needs.

(25) It is recommended that joint educational programs be developed in foreign countries to prepare both American graduates and foreign medical graduates as specialists in community medicine as a demonstration of the potentials of educational exchange for mutual benefit.

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[3] Appendix, Item 4.

(26) It is recommended that programs of medical education oriented toward general comprehensive care be sponsored in developing countries to meet the mass needs of rural and urban populations now receiving little or no health care.

(27) It is recommended that provisions be made for foreign medical graduates to participate in pilot programs working out new ways of meeting community needs in the United States, so as to provide the foreign medical graduate with an educational experience demonstrating innovative approaches which will assist him in developing similar or related activities in his own country.

Report of the Panel on Foreign Medical Graduates

Introduction

Educators and scientists throughout the world have held as a primary tenet the necessity for free interchange of ideas and personnel among universities, other educational institutions, research centers, industrial training programs, and among nations and their governments. As a profession, medicine has long recognized that innovation and vitality are provided by the interchange of ideas and techniques in academic medicine and patient care.

The vitality and spirit of inquiry that developed in American medicine during the 1930's has deepened and broadened during the last three decades. World War II accelerated productive academic inquiry, research, and technical developments in medicine, as in virtually all other fields of human activity. In the United States this occurred perhaps to a greater degree than in any other nation. Our country emerged from World War II as a recognized world power in academic and scientific accomplishments, as well as in political leadership. These achievements have had far-reaching effects on the medical profession and its systems of informational, technical, and student exchange. Whereas many American physicians and health personnel continue to seek specific information in other lands, only a small number receive all or a major portion of their basic or advanced medical education outside the United States. Beginning in the 1930's, and accelerating immensely in the two decades since World War II, the trend has been for physicians who received their basic medical education in other nations to seek specific graduate programs and other forms of advanced academic experience in medicine in the United States. Many of these persons, attracted by our society, our system of individual reward, and our standard of living, have remained in the United States as practicing physicians, teachers, and researchers. No accurate figures are available on the percentage of physicians who came to the United States for advanced training and remained permanently, but certainly it is a very significant number.

This report deals principally with two major groups of physicians:

1. Those who come to the United States to further their education and return to their homelands, and
2. Those who come either to further their education or to immigrate, but who remain to play an active role in the medical profession within the United States, regardless of their initial purpose.

In addition, the report treats three other groups of physicians whose number may be less significant, but whose impact on American and world medicine is important beyond their numbers:

3. Citizens of the United States who, by choice or because of inability to gain entrance to American medical colleges, receive their basic medical education in schools outside of the United States or Canada.
4. Scholars and leaders in medicine in other nations who come to the United States to broaden their educational, research, or technical backgrounds and thus to buttress their acknowledged leadership on return to their homeland.
5. Preeminent scholars educated in foreign lands who feel that they can make their most significant contributions to world medicine by making use of the tremendous depth and breadth of medical institutions and equipment available in the United States.

Each of these five groups presents unique problems. The principal factor common to all groups is that all of the physicians involved have received their basic medical education outside the United States or Canada.

Historical Background

Prior to the midcentury, foreign medical graduates entering the United States each year represented less than 5 percent of the Nation's total annual increase in medical manpower.

During the 1946–50 period, a reflux of American veterans caused rapid expansion of the number of approved internships and residencies to accommodate application of veterans for specialty training before return to practice. Federal support for hospital construction (Hill-Burton) resulted in a relatively large number of new hospitals. Many of these new hospitals and many of the expanded older hospitals developed new programs or enlarged existing internship and residency programs to meet the needs of the returning veterans and to provide 24-hour services of house staff physicians to patients.

By 1950, the supply of returning veterans was exhausted, and many hospitals, with newly functioning graduate education programs, lacked adequate numbers of American applicants to fill their house staff quotas. At first these hospitals turned to the displaced FMG's to fill some of the vacancies. Their number was so limited, however, that the hospitals shortly began active recruitment of FMG's. Today, many of these hospitals, particularly the smaller or less prestigious ones, continue active recruitment of foreign physicians to fill house staff positions. In many instances these so-called training programs are designed solely to provide service to the patients and physicians of the hospitals, even though they may meet the minimum standards for approval by the Council on Medical Education of the American Medical Association (AMA) and its related specialty boards. Many hospitals now send recruitment teams abroad and commercial firms, such as airlines and travel agencies, actively recruit young foreign physicians to fill internships and residencies throughout the United States, without regard to the educational competence or orientation of the participating hospitals.

In the brief period since that midcentury year there has been a rapid and dramatic increase in the annual rate of FMG movement to the United States, which has persistently accelerated far in excess of every known projection.

From 1950 to 1960, the Council on Medical Education and Hospitals of the American Medical Association (AMA) and the Executive Council of the Association of American Medical Colleges (AAMC) published a "list of foreign medical schools whose graduates they recommend for consideration on the same basis as graduates of approved medical schools in the Uinted States . . . Because the list is acknowledged to be a tentative one, the position of the Councils with respect to schools not named in the list is that they neither approve nor disapprove of them."

During the latter years of that decade, it became evident that the AMA and the AAMC did not have adequate mechanisms for evaluating foreign schools, and on January 1, 1960, the publication of this list was abandoned.

It was during this period that the American Medical Association, the American Hospital Association, the Association of American Medical Colleges and the Federation of State Medical Boards of the United States, with the unofficial participation of the State Department, decided to establish a separate organization, the Educational Council for Foreign

Medical Graduates (ECFMG), which would examine individual graduates of foreign medical schools to determine their acceptability for appointment as interns or residents in hospitals in the United States, and to assist the State medical boards in determining the eligibility of such candidates for admission to their licensing examinations.

The American Medical Association and the American Hospital Association established certain policies with respect to graduates of medical schools outside the United States, Canada, and Puerto Rico which, after an introductory period, have been in full effect since July 1, 1961.

The American Hospital Association denies the privilege of AHA registration to any hospital having on its staff in a patient care situation any graduate of a foreign medical school who does not have a valid State license to practice medicine, or who has not been certified by the ECFMG. The Association withdraws registration from any hospital that, upon the periodic resurvey to which all registered hospitals are subject, is found to be permitting an unlicensed or uncertified foreign medical graduate to engage in patient care activities. Registration by the AHA or demonstration of compliance with its criteria is a prerequisite to accreditation by the Joint Commission on Accreditation of Hospitals.

The American Medical Association policy requires that graduates of all medical schools outside the United States, Canada and Puerto Rico establish eligibility for appointment to an approved internship or residency program through either (*a*) certification by the ECFMG on the basis of satisfying the ECFMG educational requirements, as well as passing the ECFMG examination, or (*b*) obtaining a full and unrestricted license to practice medicine, issued by a state or other jurisdiction in the United States authorized to license physicians. The approved status of any intern or resident training program will be jeopardized if uncertified or unlicensed foreign physicians are found to be serving in such programs without prior authorization from the Council on Medical Education.

The Role of Foreign Medical Graduates in the United States

Quantitative Considerations

By the end of 1966, there were about 300,000 persons in the United States holding a medical degree. Of these, approximately 286,000 were professionally active. Of the total number approximately 45,000 received their medical education outside the United States or Canada. In 1966, 7,574 physicians were graduated from medical schools in the United States, and 883 from medical schools in Canada.

In 1965, there were 9,147 [3] physicians licensed for the first time in the United States; of these, 1,488 (16.3 percent) were graduates of medical schools outside the United States and Canada. In 1966 the corresponding figures were 8,596 total and 1,410 (16.4 percent) graduates of foreign medical schools.

Certain gross measurements are recorded below. It is to be noted that the record keeping has not been adequate to its task and probable errors exist in many of the tabulations given. Almost all such errors are the result of missing data so that actual growth of the FMG population is probably in excess of that indicated.

Selected data illustrative of FMG increase follows:

(*a*) *Additions to licensed medical profession*

	Total United States and FMG's	FMG's
1950	6,002	308
1955	7,737	907
1960	8,030	1,419
1965	8,943	1,488
(Total of all years 1950–65)	(122,281)	(16,950)

(*b*) *Approved internships and residencies*

	Internships filled		Residencies filled		Total FMG's
	Total	FMG's	Total	FMG's	
1950	7,030	722	14,495	1,350	2,072
1955	9,603	1,859	21,425	4,174	6,033
1960	9,115	1,753	28,447	8,182	9,935
1965	9,670	2,361	31,898	9,133	11,494

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[3] Corrected figures. JAMA (State board number) 200: 1062, 1072, June 19, 1967.

(*c*) *Immigration and Naturalization Service data—Physicians admitted as immigrants and exchange visitors*

Year (July 1–June 30)	Immigrants	Exchange visitors	FMG total	Graduates U.S. medical school
1961–62	1, 797	3, 970	5, 767	7, 168
1962–63	2, 093	4, 637	6, 730	7, 264
1963–64	2, 249	4, 518	6, 767	7, 336
1964–65	2, 012	4, 160	6, 172	7, 409
1965–66	2, 552	4, 370	6, 922	7, 574
(Total for 5 years)	(10, 703)	(21, 655)	(32, 358)	(36, 751)

This is the first time data from INS have been made available for publication (see table (*c*) above); they represent the first accurate head count of all foreign medical graduates entering the United States during any specific period. It provides new and awesome dimensions of the potential quantitative impact of FMG's on graduate medical education in the United States—and on medical care in both the United States and the nation of origin of the FMG.

It is to be noted above that over the most recent 5-year period, the total number of physicians entering the United States from other nations almost equaled the number of physicians graduating from medical schools in the United States during the same period, though only a portion of them are expected to remain permanently.

It is not possible to assign precise dollar values of gain and loss to the presence of most of the foreign physicians in the United States. Estimates of costs can be assigned, however, to the smaller segment of foreign medical graduates who represent additions to the total pool of licensed physicians available for medical care in the United States.

From 1950 to 1965, there were approximately 17,000 physicians constituting additions to our licensed profession whose basic medical education was obtained abroad at no direct cost to the United States. For the past 5 years the annual increment of newly licensed foreign medical graduates has averaged approximately 1,400. It would have cost the United States nearly $1 billion to have financed enough additional medical schools to have added 1,400 physicians a year during the period 1960–65.

Minimal Estimates of Cost To Increase U.S. M.D. Output 1,400 Per Year, 1961–65

(1) Construction of facilities:

a. $20–25 million/100 students admitted.

b. 1961 construction costs less $5 million on assumption that additional teaching hospitals will not be always required.

c. Experience indicates same construction costs whether increased output results from creating new medical schools or expansion of existing schools.

d. No allowance made for usual 10-percent attrition of entering students. Total cost of facility construction: $280–$350 million.

(2) Essential operating costs:

a. Average annual 1961 operating budget of American schools—$3.2 million.

b. Average size American medical schools 1961—approximately 100 students admitted.

c. Total annual operating costs for 14 average sized new schools (1961 average cost of operation)=$45 million.

d. Total operating costs 1961–65=5×$45million=$225 million.

e. Estimated operating costs do not include allowance for 10-percent student attrition, and the 10 percent average annual increase in operating costs for average American medical school, 1961–65; ($50 million or more should be added to $225 million in (*d*) above, if these factors are included).

(3) *a.* Total minimal cost to replace foreign medical graduate additions, 1961–65=$505–$575 million, assuming no expenditures except those essential to operation (no research, etc.).

b. In fact, an adequate faculty could not be acquired under the circumstances of no research support, no graduate training programs, etc. The average additional annual cost of average American medical schools for such additional purposes=$5 million per year.

c. Total minimal cost to replace foreign medical graduates added to licensed profession in average American medical environment in the 5 years 1961–65 would raise estimates (in 3*a*) to $855–$925 million.

Qualitative Considerations [4]

The tabulation of INS data on entry of immigrant and exchange visitor foreign graduates provides evidence of serious gaps in knowledge which is essential to a realistic appraisal of the impact of all foreign graduates on health care in this country. The INS data indicate annual entry to the United States of a substantially greater number of foreign medical graduates than can be accounted for as participants in the health care in this country in approved training programs or as additions to the licensed medical profession. Foreign graduates, not included as part of these activities, if participating in health care in this country, are doing so for the most part without having demonstrated the minimal competence required by law, by governmental regulation and by professional standards established for the protection of the public.

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[4] Appendix, items 5, 6.

Indirect evidence suggests that of some 7,000 foreign medical graduates entering the United States in 1966, it is possible that as many as 2,500 may not have passed the ECFMG examination and that perhaps another 1,000, entering with "J" visas ostensibly for further training as interns or residents, did not enter approved training programs. Practically all States require ECFMG certification, or one or more years of training in an approved internship or residency, citizenship or first papers, or some combination of these factors, before admitting a foreign medical graduate to licensure examination. Thus, it would be virtually impossible for the "missing" segment of foreign graduates in 1966 to have acquired the legal right to practice medicine.

The validity of the suggestive evidence should be tested with all possible speed, for its confirmation would have obvious and serious implications.

There is other information of public importance regarding the role of foreign medical graduates in the United States that is not presently available. Fundamental to the protection of medical care in the United States, to the best interests of foreign medical graduates here for further training, to a reasonable concern for the welfare of the nations of origin, is the regular collection, tabulation, and assessment of information regarding such matters as (*a*) the numbers of foreign medical graduates entering the United States each year, (*b*) the type of entry permit, (*c*) the nature and specific location of their medical activities in the United States until they are legally licensed or until they depart from the United States, and (*d*) the location and nature of medical activities of visiting foreign physicians after their departure from the United States.

Medical Ability of Foreign Medical Graduates[5]

A few measurements of the medical ability of foreign medical graduates are available in a manner that allows for rough comparison with the ability of graduates of American schools.

Performance on State board examinations, candidates examined in 1965

	Number candidates	Number failed	Percent failed
U.S. schools	4, 819	113	2. 3
Foreign schools	3, 011	968	32. 1

Extended sample of State board performance of foreign medical graduates

Year examined	Number FMG candidates	Percent failed
1950	799	55. 4
1955	1, 771	41. 7
1960	2, 864	29. 1
1965	3, 011	32. 0

(Highest failure rate for U.S. graduates, 1960–65=3.3 percent.) In view of widespread opinions of U.S. medicine that State licensing examinations usually reflect insufficient standards of expected knowledge, the poor performance of FMG's noted above takes on added significance.

Performance of foreign medical graduates on ECFMG examination

Year examined	Number of candidates	Percent scoring 75 or higher
1961	14, 222	37. 8
1962	14, 535	41. 7
1963	19, 130	31. 6
1964	18, 511	36. 8
1965	18, 337	42. 1

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[5] Appendix, item 4.

(On the basis of their performance on the same test items, 97 to 98 percent of graduates of American medical schools would score 75 or higher.) Poor performance of FMG's in terms of what is expected of U.S. graduates confirms State board examination results and clearly indicates cause for serious alarm at the potential disastrous effect of foreign medical graduates on standards of medical education and practice in the United States.

A carefully selected sample of hospitals in the United States with FMG's and American graduates in internship and residency programs was recently queried to evaluate the comparative performance of these two groups.[6] In the opinion of physicians responsible for the training programs, the great majority of American graduates were rated professionally more competent and made better progress in the training programs than all but a very few of the foreign graduates; the great majority of foreign graduates were rated at the lower range of professional competence and progress in training at levels where only a very few American graduates were placed.

Geographic Considerations

The distribution of foreign graduates in approved residency training programs varies widely among the several States.

Location by State of concentration of foreign medical graduate residents, 1965

State	FMG's as percent of total residents
New Jersey	68
North Dakota	67
Delaware	63
West Virginia	58
Arizona	55
All States	29

The distribution of foreign medical graduates who were licensed to practice medicine in 1965 also varies considerably among the States. The tabulation on page 89 shows the figures for all States and for 11 individual States and the District of Columbia in which either the number or the percentage of foreign medical graduates licensed in 1965 was relatively high. It will be noted that in the District of Columbia, Maine, New Hampshire, Rhode Island, and New Jersey, 50 percent or more of the physicians initially licensed during the year were foreign medical graduates. Only in Maine did the foreign medical graduates constitute more than half of all of the physicians licensed during the year.

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[6] Full study details, appendix, item 4.

The available evidence regarding the competence of foreign medical graduates gives particular urgency to the need of these States to identify better means of appraising the abilities of foreign medical graduates or run the risk of seriously diluting the quality of medical care available to their citizens.

Foreign medical graduates licensed in 1965

	All licenses issued, 1965			Initial licenses issued, 1965		
	All physicians [1]	Foreign medical [2] graduates	Percent foreign medical graduates	All physicians [3]	Foreign medical [4] graduates	Percent foreign medical graduates
California	2, 657	50	2. 7	1, 045	34	3. 3
Connecticut	336	115	34. 2	140	39	27. 9
District of Columbia	319	76	23. 8	99	54	54. 5
Florida	510	77	15. 1	164	26	15. 9
Illinois	641	125	19. 5	384	92	24. 0
Maine	89	48	53. 9	51	38	74. 5
Michigan	580	137	23. 6	359	45	12. 5
New Hampshire	105	45	42. 9	40	28	70. 0
New Jersey	459	103	22. 4	120	60	50. 0
New York	2, 232	631	28. 3	1, 192	312	2. 6
Pennsylvania	938	201	21. 4	589	146	24. 8
Rhode Island	80	36	45. 0	32	20	62. 5
Virginia	545	157	28. 8	309	120	39. 2
All States	17, 812	2, 654	14. 9	8, 943	1, 488	16. 6

[1] Table 1, p. 858. [2] Appendix table 14, p. 906. [3] Table 7, p. 863. [4] Table 15, p. 87.

Source: All from JAMA, State Board Number, Vol. 196, June 6, 1966.

National Origin of Foreign Medical Graduates

The national origins of foreign medical graduates in the United States for training purposes can be established at present only on the basis of the country in which they attended medical school. Although this may introduce some error, it is probably not of serious consequence since most nations outside Africa have medical schools. There is little reason to believe that significant numbers of students in the nations now most substantially represented by foreign graduates in training travel to other countries for medical school studies.

Foreign countries with medical schools contributing the most graduates to residencies, Dec. 31st, 1965

Country	Number of residents	Percent of total	Rank as to number of graduates in total U.S. physician population
Philippines	2,474	24	2
India	1,124	11	7
Iran	536	5	11
Cuba	414	4	5
Argentina	358	4	14
Italy	314	3	3
Mexico	309	3	8
Germany	295	3	1
Spain	294	3	13
Colombia	293	3	21
Korea	289	3	15
Switzerland	266	3	4

Comparison of the columns indicating national origins of residents and origins of FMGs in the total U.S. physician population provides insight into significant changes that have taken place in the source of FMGs in the United States over a number of years. For example, the high ranking of Germans in column 3 reflects the migration of postwar years rather than more recent trends.

Implications for Health Care in the United States

The introduction of large numbers of minimally qualified physicians into the hospital training programs of the United States has almost certainly lowered the levels of graduate medical education and of the quality of medical care available to large segments of the American public, with questionable benefit to the nations from which the physicians have come. Since many of the foreign physicans who come to the United States for graduate medical education each year eventually become permanent, licensed members of the medical profession in the United States, we are running the risk of a permanent lowering of the quality of medical care of Americans.

Graduate medical education in the United States is primarily based on internship and residency training programs. These are focused primarily on patient care in a hospital setting and require direct and increasing participation of the young physician as he progresses in the training program. Programs have always been designed to provide that young physicians have the direct experience of increasing responsibility for patient care under decreasing supervision of the teaching staff, always with the patient's welfare in mind. The level of initial responsibility given to interns and residents has been determined in relationship to the clinical knowledge, ability and skill required by U.S. medical schools of their graduates.

Medical education in the United States differs significantly from that in many other parts of the world, in that students are extensively involved in the care of patients during the last 2 medical school years, under the constant skilled supervision of faculty members. Medical schools in the United States have a much larger proportion of faculty members in relationship to the number of students than is found in any other country.

For American medical graduates, internship and residency programs have proved to be highly successful educational experience, with good quality patient care.

In 1965–66, 24 percent of all interns and 29 percent of all residents in approved hospitals in the United States were foreign medical graduates. The overwhelming majority of these physicians are located in hospitals along the eastern seaboard and in a few metropolitan areas, such as Chicago, Cleveland, and Detroit. Most foreign medical graduates who are not in approved educational programs, but who are active in patient care within our hospital system, are also working in these areas. In New Jersey, 75 percent of all interns are foreign graduates and in New York the proportion is about 65 percent. In other States, foreign medical graduates may represent less than 5 percent of the intern population. Several characteristics of this distribution are interesting. In many eastern and midwestern hospitals with fewer than 400 beds, which are not affiliated with American medical colleges, the house staff consists primarily or entirely of foreign medical graduates.

Most physicians employed in hospitals solely for patient service and outside of educational programs are foreign graduates. Less than 10 percent of foreign medical graduates are in internships and residencies in university hospitals or medical school affiliated hospitals. In recent years the number of foreign graduates from English-speaking or Western European countries has leveled off or diminished; most foreign graduates now come from less developed countries.

The changes in the Immigration and Nationality Act and the accompanying changes in regulations have created another conflict. The Department of Labor will give an occupational-preference immigrant visa to any physician who is a graduate of an institution identified in his homeland as a medical college, and who is licensed to practice in his own country. This visa may be issued whether or not the applicant has passed the ECFMG examination. Thus, a physician who has not passed the ECFMG examination, and who is therefore not eligible to enter an educational program or to enter a service position in any accredited hospital in the United States, can obtain a visa which he feels entitles him to work as a physician in this country.

In addition, significant numbers of physicians who have not passed the ECFMG examination have been granted temporary licenses by special State law which allows them to work solely within State institutions, primarily mental hospitals. Whereas the difficulties of staffing such institutions have been apparent for years, the employment of totally unevaluated foreign physicians can hardly produce an acceptable level of medical care.

An insidious side effect of heavy dependence upon foreign medical graduates has been the passive assumption that the United States need not meet its health manpower needs from within its own resources. By importing foreign medical graduates, we have successfully evaded the challenge of expanding American health education to meet its needs. Were it not for the presence of these foreign physicians within our medical care system, our critical shortage of physicians would be much more evident.

Aside from the impact of foreign medical graduates on the level of patient care in many hospitals in the United States, there are two other readily identifiable serious problems: (1) The foreign medical graduates, because of lack of knowledge or because of salary considerations, tend to go to hospitals with the least productive and effective graduate medical programs; and (2) most foreign medical graduates are from less developed countries, and their is widening skepticism about the ultimate value of training them solely in American institutions. Even the least advanced of our community hospitals is equipped far better than those which the foreign graduate may expect to utilize in his native country. The question therefore arises about the wisdom and desirability of his entering a training program that does not provide individual flexibility and in which the service facilities and equipment are so far superior to those at home that the contrast is bewildering and depressing. Possibly this opportunity should be limited to the carefully selected foreign medical graduate whose previous education has been essentially equivalent to that received by his professional colleagues in the United States and who will be returning to a well equipped hospital at home.

Implications for International Health Care

While substantial numbers of graduates of foreign medical schools remain permanently in the United States, the available evidence suggests that the majority of them do return to their homelands. The implications with respect to the health care of people of other countries are obvious. If we are training their young physicians well, we are helping them; otherwise not.

As noted in the previous section, a paramount question in this connection is whether we are training these young physicians well for practice in their own countries. It is quite likely that even the highest quality of training in hospitals in the United States not only does not help a young physician to return to a developing country and take proper care of his countrymen; it may actually render him less fit to do his best job at home. The health and medical care problems of developing countries are entirely different from those in the United States, and many students of the subject are convinced that the United States should either abandon the practice of training physicians from developing countries or design entirely new and different programs for them.

The results of good intentions have been disappointing. Exchange Visitor visas in medicine have not produced the cultural exchange that was their original stated purpose, nor have they fostered friendly relations and mutual respect, both implied purposes. The foreign medical graduates who have remained here have actually weakened medical care within the very nations that we are dedicated to supporting. The resultant damage to our national image is reflected in the fact that one very large country now prohibits the ECFMG examination within its boundaries.

Even among physicians who have returned to their homelands after a period of study in the United States, we have produced less than the desired results. Many have returned to a society for which they are no longer prepared and in which there is no place for the professional skills acquired in the United States because of inadequate equipment and inadequate ancillary and supportive personnel in their countries. Implicit in much of the planning for training of foreign medical graduates in the United States is the assumption that what is good here must also be good in other countries. The fallacy that our high level of medical education produces competent physicians for the United Staes and therefore for all other societies has become increasingly dangerous. The simple truth is that the best physician for India is not necessarily the prototype American physician. Most developing countries need community physicians who can practice comprehensive medicine, combining the preventive and curative functions with awareness of the need for social measures to improve health. Periods of exposure to the increasingly specialized medical education in the United States isolates them from the general knowledge needed in understanding community problems. Perhaps the greatest damage is in the distorted view of what is prestigious and important in the values that eventually alienate them from their native medical environment.

Summary

This panel believes that although the United States began the program of international exchange in medicine with a high purpose and in the interest of the common good, the program has produced far less than the results anticipated. We have grown dependent upon foreign medical graduates for a significant percentage of the physicians we need. The introduction of a large number of minimally qualified physicians has almost certainly lowered the levels of graduate medical education in U.S. hospitals and the quality of medical care available to large segments of the American public. There has been questionable benefit to the nations from which the physicians have come. Often we have disillusioned the foreign medical graduates with the medical milieu of his homeland and have rendered him less productive upon his return. We have done all of this with the best of intentions. We should now apply these good intentions to the development of a cogent guiding national purpose in relation to the foreign medical graduate. We can then proceed to develop a series of programs and proposals to right the present wrongs and to assure the best possible medical care to our own citizens and the most productive educational experience to foreign physicians who seek to broaden and deepen their knowledge in the United States.

Deliberations of the Panel Upon Which the Recommendations Are Based

National Purposes

The panel was unanimously and strongly of the opinion that the United States, as the richest country in the world and as one of the countries in which the medical sciences are most advanced and highly developed, should not only be producing physicians and other members of the health profession in numbers sufficient to meet its own needs, but also in numbers sufficient to assist other nations in developing means of meeting their own health needs. The introduction of graduates of foreign medical schools into the graduate training programs of hospitals in the United States has been on a haphazard basis, with no clearly defined national purpose.

In the light of these considerations, the panel adopted recommendations for the establishment of national purposes in these fields, namely:

1. It should be the national purpose of the U.S. medical educational system to provide a sufficient number of well-trained physicians and other health personnel to meet the health needs of the United States and to assist other countries, particularly developing countries, to improve their systems of medical education and their levels of medical practice and public health.

2. With respect to foreign medical graduates coming to the United States, it is recommended that the United States adopt as its national purpose the principles that:

a. The foreign medical graduate on an exchange visa be provided an educational experience unavailable in his own land which is designed to meet the special needs of the individual and his nation, so that upon his return he can play a more effective role in the improvement of health care and medical education among his own people.

b. The foreign medical graduate on an immigrant visa be provided with an educational experience which will qualify him to meet the standards of medical education and health care prevailing in the United States, so that he may be able to enter graduate programs, or render medical care at a level consistent with the knowledge and skills of American medicine.

c. The foreign medical graduate who is an American citizen be similarly provided with an educational experience which will qualify him to meet the standards of health care and medical education prevailing in the United States.

d. The highly qualified physician or research scientist who wishes to participate and contribute for any period in the activities and intellectual growth of the academic and research institutions of the United States be welcomed.

3. It is recommended that an educational exchange program be established to strengthen schools of the health professions in other countries to the end that these countries will eventually meet their own needs. The objective is to encourage these countries to establish or strengthen centers of educational excellence and innovation which will provide a continuing basis for improving health services in accordance with local needs.

Foreign Medical Graduates and U.S. Hospitals

At present, most foreign medical graduates come to the United States for graduate medical training on their own initiative, and enter training programs after direct negotiations with one or more hospitals in the United States. During the 5-year period from July 1, 1961 to June 30, 1966, two-thirds of all foreign-national physicians coming to the United States came on exchange visitor visas, and one-third on immigrant visas. The percentage of foreign nationals entering the United States on immigrant visas will almost certainly increase sharply in the immediate future, in view of the relaxation of the quota requirements in the 1965 amendments to the Immigration and Nationality Act.

Among the group of physicians on exchange visitor visas, a considerable number do eventually convert their status to that of immigrants and stay in the United States permanently. Not all who originally enter with Immigrant Visas remain permanently.

The panel believes it would be desirable to limit the issuance of exchange visas to foreign physicians who are coming to the United States on a planned educational training program. Foreign physicians coming to the United States on their own initiative, for graduate medical education followed by return home or for permanent stay in the United States, should be required to qualify for Immigrant Visas.

The panel also took note of the fact that although all of the foreign graduates who enter approved training programs in the United States have presumably passed the ECFMG examination, about one-fourth of those who pass the ECFMG examination achieve a bare passing score of 75, and approximately another one-fourth score between 75 and 79. Only 1 to 2 percent of graduates of American medical schools would be expected to score below 75 on the ECFMG examination, about 3 percent would score exactly 75, and fewer than 20 percent would score below 80. In other words, about half of the foreign medical graduates who pass the ECFMG examination do so at a level equivalent to the bottom 20 percent of American graduates and a quarter of them are equivalent to the bottom of 3 or 4 percent of American graduates.

In addition, it was of serious concern to the panel that no examination can measure cultural characteristics and attitudes. Graduates of American medical schools have been brought up in the atmosphere of American medical and hospital practice and in the cultural customs of the United States. American citizens who have had their basic medical training in other countries present no problems of cultural adaptation, but they may have to learn a good deal about the medical mores of the United States. Foreign nationals, especially those from developing countries, characteristically require a great deal of indoctrination in American culture and medical practice.

A somewhat related problem is that graduates of most foreign medical schools have had little or no responsibility for patient care during their undergraduate years, certainly nothing approaching the experience that American graduates have had.

And finally, even though they have all passed the ECFMG English test, language is frequently a serious problem with the foreign medical graduates.

In consideration of all of these problems, the panel came to the conclusion that it would be desirable to screen foreign medical graduates more strictly and, in addition, to require that all of them (including American citizens) be required to participate in an orientation and training program before permitting them to start appointments as interns or residents in hospitals in the United States. Such orientation and training programs would be of 3 to 12 months' duration, during which the physician's competence in the basic and clinical medical sciences, in English, and possibly in mathematics and other fields would be assessed, and appropriate remedial instruction would be given.

The length of each physician's participation in the program would be determined by initial evaluation of his needs or deficiencies and subsequent evaluation of his progress.

The panel believes that orientation and training programs of this sort should be conducted throughout the country under a consortium consisting of a medical school, with its supporting services and affiliated hospitals, and other hospitals and educational institutions in the area.

It is recognized that financing such a program would require substantial funds, which could not be provided by the medical schools or by hospitals. It appears to the panel that Federal funds would almost certainly be required to support the program.

The panel recognizes that at the present time there is a wide range of quality in the graduate education programs being provided to foreign medical graduates. It was the panel's conclusion that the Council on Medical Education of the American Medical Association should make the standard for approval in internships and residencies more stringent, so as to improve and make more uniform the quality of these programs. This will require an elevation in the standards, and deeper and more time-consuming program reviews.

The panel recognizes that the U.S. citizen who has had his medical education in a foreign country poses special problems. He does not require a visa of any kind to return to the United States, and has no language problem except in rare instances. The panel believes, however, that although he will need no instruction in English or in U.S. culture, the American citizen who is a foreign medical graduate should be required to participate in all of the other aspects of the orientation and training programs.

The panel recognizes that immediate establishment of such programs of orientation would be impossible under present conditions but notes that with stricter screening, diminution of the number of entering foreign graduates, expansion and financial support of such a program, implementation would be possible over a period of years.

These considerations led the panel to the recommendations previously made on screening procedures and on orientation of educational programs.

Commission on Foreign Medical Graduates

The panel has been able only to scratch the surface in its few months of existence, and feels strongly that a permanent body should be established to continue exploration of the problem and to develop additional recommendations.

The panel therefore recommends that there be established immediately a permanent commission on foreign medical graduates and medical exchange programs. The panel believes that the commission should be organized outside of the Government, though it would expect that appropriate parts of the national government would participate, and presumably provide some of the support of the commission. The panel believes that as a minimum, the commission should include representatives of physicians (the American Medical Association), of hospitals (the

American Hospital Association), of hospital directors of medical education, of educational institutions, medical schools and universities (the Association of American Medical Colleges, the Institute of International Education), of the Federal Government (particularly the Departments of State, Labor, and HEW), of licensing and examining boards (State Boards of Medical Examiners, National Board of Medical Examiners, the ECFMG), and of the public.

The Commission should be permanent and should be financed by foundations, associations, and if necessary, by the Government.

The commission should function as a body to continually study and recommend to all participants solutions to the problems of the foreign medical graduates in the United States and of the medical education exchange program.

The panel believes that as an additional step in the development of a permanent information program concerning foreign medical graduates, the commission should call a national conference for wider discussion of the problems of the foreign medical graduates, both with respect to their presence in the United States and their impact on the physicians' own countries. In time, it may be desirable to call an international conference on this subject.

Program on Statistical Information

The permanent commission recommended above, in cooperation with the Immigration and Naturalization Service, the American Medical Association, the American Hospital Association, and other vitally interested groups, should establish immediately a program of a competent nature which will gather statistical information and data on the intake, presence, performance and fate of foreign medical graduates entering the United States for graduate medical education.

As Dr. Donald F. Hornig said in testifying before the Immigration and Naturalization Subcommittee on the Senate Judiciary Committee on March 10, 1967:

> "Better information on the international movement of highly trained people is badly needed. It is ironic that we have kept detailed statistics for decades on shipments of coffee, cocoa beans, steel and cotton, but that we have only general approximations to the current flows of human beings."

The panel was frustrated repeatedly in its deliberations by the total lack of dependable statistical information. The data necessary for informed judgments are simply not available. They must be made available with the least practical delay.

U.S. Role in International Medical Education

Background

The general nature and extent of the Nation's present role in international medical education is a direct outgrowth of Federal legislation (enacted 1948) with the sole stated purpose of fostering improved relations between the United States and other nations. The law provides for accomplishment of this purpose by encouraging foreign nationals to enter the United States as exchange students for training directed toward preparation for a very broad spectrum of work careers.

In view of the stated purpose of the law and its notable lack of explicit concern for policies and practices essential to sound educational principles and standards, the peculiar diversity of education and training of exchange sutdents in the United States is understandable. The legislative history as well as the provisions of the act indicate that it was not intended to have any relationship to educational needs or objectives. Rather, it appeared to view the educational process solely as a technique for exposing foreign nationals during impressionable years to the attractive social, economic, and cultural advantages available in the United States, combined with our concern for the independent rights and freedoms of our people.

However worthy the law's intent and accomplishment, it can no longer represent the legislative basis for U.S. efforts in international medical education.

Community Orientation for Physicians

Both in the United States and in other countries, especially the developing countries, there is a pressing need to develop a consciousness of community needs in young physicians, to establish specific training programs designed to fit the physicians for participation in and leadership of communitywide health maintenance programs, and to develop incentives in such programs sufficient to attract physicians. Such training programs should be established in the United States for both American graduates and foreign graduates, but there should be special emphasis on helping other countries to expand their research and training in systems of health services designed to meet their own needs.

Principles and Policies

The abundance of health resources of personnel, technology, and physical facilities in the United States as compared with the vast majority of other countries imposes on our Nation a responsibility to commit a portion of these resources to stimulate and assist in the development of improved basic health resources of other, less-favored nations.

There should be a prompt expansion of health educational facilities, in proportion to the Nation's high economic ability, so that it will be possible to satisfy the health care needs at home and provide sufficient personnel for an expanded program of assistance abroad.

A substantial program of research designed to identify increasingly effective and efficient means for providing health care should be developed. The stimulation of and assistance in similar research should regularly be a part of all international efforts.

Internal policies and external programs of assistance should be designed to assist developing nations to retain all of their own trained health professionals. The sole exception should be in regard to the rare individual whose research capabilities can better benefit international health by use of advanced U.S. technological resources.

Advances in knowledge in the science and art of medicine wherever produced must be transmitted promptly and widely with the conviction that such knowledge in its derivation and application is to be considered as belonging to the world of medicine, unrestricted by national boundaries or political interests.

World ownership of advances in medical knowledge must be accompanied by world acceptance of the need to encourage scholars with acknowledged ability to create new knowledge through research to locate themselves close to modern technological resources. These often will be essential and commonly will facilitate the full exploitation of the unique and crucial talents of creating scholars.

In view of its concentration of resources, the United States should grant preferential entry for short or long residence to medical researchers of demonstrated competence.

The concentration of foreign assistance efforts on improvement of basic health educational systems will result in maximal effectiveness with minimal expenditure of required resources.

All efforts in foreign assistance should take full account of the particular health needs and limits of projected supporting resources of the nations involved. A regional approach to the U.S. effort and to the developing health education system should regularly be considered and implemented when feasible. These important principles indicate that U.S. foreign assistance efforts must be conducted primarily within the immediate or regional environment of the nation involved.

Effective results of foreign assistance will depend primarily on sending U.S. health personnel abroad with the need for only few key foreign nationals visiting the United States for essential study and observation not otherwise available.

Appendix

Item 1. Definitions

There are a series of terms and abbreviations in common usage in American medical education, in the State Department, in the Immigration and Naturalization Service, and among those who have discussed and worked actively in the international exchange field in medicine. Presentation of these definitions at this time will shorten this report by allowing abbreviations and will at the same time familiarize the reader with some of the unfortunate but necessary jargon within our field of discussion.

Foreign Medical Graduate (FMG).—An individual who, for the purposes of this report, is a physician who has received his medical education and the degree of Doctor of Medicine or equivalent degree from a medical school located outside the United States, Canada, or Puerto Rico. He may be a foreign national or a citizen of the United States.

"J" Visa (Educational Visa).—A visa issued to a foreign national under the Educational Exchange Act. These visas are issued for the primary purpose of allowing foreign students to receive all or part of their education within the United States. It generally has a time limit of 5 years when applied to physicians. Extensions are possible for specific purposes. In nonmedical fields the limit is usually 2 years of residence within the United States. An individual who enters the United States on a "J" or educational visa cannot immigrate to the United States on a permanent basis after his educational visa expires until he has spent at least 2 years outside the United States in his own or a cooperating nation.

Immigrant Visa.—This is a visa issued to a foreign national to allow him to take up residence in the United States and eventually to become a naturalized American citizen if he so chooses and qualifies. The immigrant visa may be on a quota basis or a nonquota basis. It may be on an occupational basis, third preference (member of professions or persons of exceptional ability in the sciences or arts), or sixth preference (skilled or unskilled workers in short supply).

Quota Immigration Visa.—This is an immigration visa issued to a foreign national under the quota system of immigration wherein each nation has a specific allowable yearly number of nationals who may seek immigration visas to the United States. Selection under the quota system is completely independent of any factors peculiar to the individual (e.g., his educational background or skills) and is therefore on a nonoccupational basis.

Educational Council for Foreign Medical Graduates (ECFMG).—The ECFMG is an independent nonprofit corporation. The Board of Trustees includes two representatives from each of the four member organizations, and two members representing the public at large. Its stated purpose is to provide information to foreign medical graduates, to verify the credentials and to evaluate the educational qualifications of foreign-trained physicians who desire to advance their education in the United States, and to arrange examinations which determine the readiness of such individuals to benefit from education in hospitals in the United States.

ECFMG Examination and Certification.—The ECFMG examination is composed of items previously used by the National Board of Medical Examiners to test American and Canadian medical students and graduates. The examination is scored in relation to the scores that have been achieved by American medical students and graduates in the examinations of the National Board of Medical Examiners from which the questions making up the ECFMG examination have been selected. A passing score of 75 on the ECFMG examination is set to be as nearly as equivalent as possible to a passing score of 75 on Part II of the National Board examinations. The examination is designed to assure that the basic medical knowledge of the foreign medical graduate who passes the examination is comparable with the minimum expected of graduates of approved medical schools in the United States or Canada. About 98 percent of American medical graduates would be expected to receive a passing score of 75 or higher in the ECFMG examination.

A foreign medical graduate who has passed the ECFMG examination, who has completed the documentation of his medical credentials to the ECFMG receives an ECFMG Certificate, which is required for appointment to an internship or residency, or to any staff position, in any hospital registered with the American Hospital Association or approved for internship or residency training by the American Medical Association. ECFMG certification is also required, directly or indirectly, by practically all States before a foreign medical graduate may be admitted to their State Board licensure examinations.

National Board of Medical Examiners.—Is a nonprofit corporation representing most of the organizations active in American medical education. It is the purpose of the National Board of Medical Examiners to conduct examinations for the continuing evaluation of the progress of American medical students and physicians through their basic and early clinical education, at a level which will be acceptable to State Boards of Medical Examiners in lieu of their own State Board examinations.

The National Board has a Part I examination (a 2-day examination) covering the basic medical sciences (anatomy, microbiology, biochemistry, pathology, pharmacology, and physiology). Students who have completed 2 years of education in an approved medical school in the United States or Canada are eligible for this examination. The Part II examination is a 2-day examination covering the clinical fields of medicine (internal medicine, surgery, obstetrics and gynecology, pediatrics, psychiatry, and public health and preventive medicine); this examination is designed for graduating medical students.

The Part III examination is designed to give some measure of the clinical competence and thought patterns of the physician. It is administered during the latter months of the internship year. The examination has recently been completely redesigned and is of a new type, with the principle purpose of measuring the physician's approach to clinical problems, the breadth and depth of his understanding, and his ability to analyze and solve problems in relation to situations involving patients.

Most States accept the National Board diploma as the basis for State licensure, without requiring the physician to take the specific State licensing examination.

Undergraduate Medical Education.—This is the period during which the student is in medical school, registered in a course leading to the degree of Doctor of Medicine. In the United States this is a standard 4- or 5-year curriculum, usually following a baccalaureate degree in a college or university. In other nations this period may be 3 to 7 years and may follow or be combined with those studies leading to a baccalaureate degree. The quality and type of these programs within the United States and Canada is relatively standardized by a complex interdigitation of standards and accrediting agencies. In the rest of the world it may vary from lecture programs with as many as a thousand in a course to small, select, and personal courses with a small number of students in each course. The quality varies as widely.

Graduate Medical Education, The Internship and Residency Years.—At the present time 48 of the 50 States require a graduate of an American medical school to spend a minimum of 1 year in an approved internship program prior to licensure. This first year after medical school provides an intensive in-hospital experience for the recent graduate. It may be spent in rotation among the four or five major clinical specialities or it may be spent in concentration upon one clinical specialty (e.g., medicine, surgery) in preparation for further special training in that field. Following the internship and after completion of licensing examination or receiving a license through presentation of his National Board credentials, the graduate may enter practice. Today some 90 percent of American graduates go on to further intensive specialty training at the residency level, prior to practice.

A residency is an intensive in-hospital program of education and training in a particular specialty (e.g., pediatrics, urology, general surgery, etc.). Residency programs may vary in length from 2 to 5 or 6 years, depending on the specialty and demands of the certifying board within that specialty which approves the training program in conjunction with the Council of Medical Education of the American Medical Association.

Approved Hospital Programs, Approved Internship or Residency.—These are programs conducted within American hospitals which have been surveyed and approved by the Council on Medical Education of the American Medical Association acting in conjunction with the specialty groups concerned in each specific residency training area. Only through this type of program can the intern or resident receive credit towards his specialty certification and thus receive permission to enter into the specialty certification examinations.

Unapproved Programs.—Some hospitals in the United States, especially smaller hospitals, conduct programs which they refer to as internships or residencies and which are not approved by the Council on Medical Education. These programs are uniformly designed to provide inexpensive full-time physician service and coverage within the hospital. These programs generally have: (1) Little or no educational value, (2) higher salaries than approved programs, and (3) attraction principally for physicians who cannot gain entry to approved programs or who are interested in income on a more or less permanent basis.

Item 2. Foreign Medical Graduates and U.S. Immigration Policies

On October 3, 1965 the Congress of the United States amended the Immigration Act of 1952 (McCarran-Walter Act). This new act is the latest in a long series of immigration legislation enacted by Congress since the beginning of the 19th century. Its major features are: the immediate elimination of the Asia-Pacific Triangle provisions and the abolishing of the national origins quota system after a 2½-year transition period. An annual ceiling of 170,000 is established on quota immigration with a limitation of not more than 20,000 numbers to be made available to natives of any single foreign state. Until July 1, 1968 the present annual quotas will be retained. After that time quota numbers will be distributed on a first-come, first-served basis within the preference and nonpreference categories and within the 170,000 overall limitation and 20,000 limit per foreign state. On that same date and for the first time in U.S. immigration history, an annual ceiling of 120,000 will be placed on immigration from the Western Hemisphere.

The legislation establishes the following new preference categories:

Classes	*Description*
First preference	Unmarried sons and daughters of U.S. citizens.
Second preference	Spouses and unmarried sons and daughters of aliens lawfully admitted for permanent residence.
Third preference	Members of the professions or persons of exceptional ability in the sciences or arts.
Fourth preference	Married sons or daughters of U.S. citizens.
Fifth preference	Brothers or sisters of U.S. citizens.
Sixth preference	Skilled or unskilled workers in short supply.
Seventh preference	Refugees.

An important feature of the new act is that it requires an individual determination by the Secretary of Labor in all cases of third, sixth, and nonpreference immigrants, and in all cases of natives of independent Western Hemisphere countries (except parents, spouses, and children of U.S. citizens and permanent residents). The Secretary of Labor must find in such cases that "(A) there are not sufficient workers in the United States who are able, willing, qualified, and available at the time of application for a visa and admission to the United States and at the place to which the alien is destined to perform such skilled or unskilled labor, and (B) the employment of such aliens will not adversely affect the wages and working conditions of the workers in the United States similarly employed."

Third and sixth preference petitions are not to be approved without the required Labor certification unless the alien is to be employed in a field in which the Department of Labor has found that a shortage of qualified persons exists in the United States. In such cases it is not necessary to make an individual application for the certification.

This is the crucial point to understand when considering the subject of immigration of FMGs. It is also the pivotal point of the Labor Department's decision in December of 1965, at which time it ruled that there is a shortage of physicians in the United States. Consequently, physicians from abroad may petition for an immigrant visa without applying for Labor Department clearance. The impact of this decision will be discussed later.

Background: U.S. Immigration Laws. In 1819 the first Immigration Act was passed in the United States. It required all captains of vessels entering U.S. ports to give an account of their passengers to port authorities. From 1820 to 1890, northern European immigration to the United States was predominant. In the early 20th century, Italians, Russians, and Austro-Hungarians constituted the major bulk of immigration. During the 19th century Europe saw many revolutions and counterrevolutions; one can almost reconstruct European upheavals as evidenced in the wave of immigration to North America. In the middle years of the 19th century there was a large influx of peoples of Asian origin. By 1880 the U.S. Congress was prepared to stop unwanted immigration from the Orient and passed the first of several Chinese Exclusion Acts and made a gentlemen's (exclusion) agreement with Japan. Throughout these earlier years in U.S. history, immigration from northwestern Europe was favored and immigration from other parts of the world was, if not specifically excluded, certainly not favored.

During the period immediately preceding World War I and during the War itself, immigration to the United States was at a virtual standstill. After World War I new waves of immigrants began arriving, thereby causing the Congress to pass America's first Quota Act on May 19, 1921. Quotas were based on the Census of 1920 (national origins of white persons) and established on a worldwide basis. In fact, in theory, and in practice they also implemented America's preferences for northern European immigrants.

In the depression years immigration dropped, as the United States strictly enforced the "public charge" clause of the 1921 act. Additionally, economic conditions, in the world and in the United States, were not propitious for immigration.

Immediately prior to World War II many political refugees were admitted into the United States. During the war years, however, immigration tapered off once more. But since World War II immigration has increased; political and economic conditions within the United States have encouraged immigration; and political and economic conditions throughout the world have been conducive to emigration. Since the Second World War, however, the quota has never been oversubscribed, although immigration to the United States has averaged 100,000 for the past 10 years.

Immigration Policies and Foreign Students. In 1936 the U.S. Government officially launched its program of promoting better understanding through encouraging mutual exchanges among students. As a part of America's Good Neighbor Policy, a convention with Latin America was signed in Buenos Aires in 1936. It was renegotiated in Caracas in 1954 and still remains in effect.

With the passage of the Fulbright Act of 1946, the United States began in earnest its policy of promoting international goodwill and understanding through students. This international program for educational and cultural exchange of the U.S. Department of State was extended in 1948 by the Smith-Mundt Act, which authorized the appropriation of U.S. funds each year by the Congress to be used jointly with certain foreign currencies designated for educational purposes. In 1961 these programs were further refined, extended, and supported by the Mutual Educational and Cultural Exchange Act (Fulbright-Hays Act).

In theory and in practice the exchange programs have been eminently successful. Their basic purpose of promoting better understanding among participating nations has been one of the cornerstones of postwar American foreign policy and has achieved widespread support both within the United States and abroad. It is becoming increasingly apparent, however, that many foreign students are beginning to use the Exchange Visitors' Program as an avenue for permanent residence or immigration to the United States. This is possible, even though a foreign student with an Exchange Visitor's Visa (type J) is committed to return to his home country, or a third country, for a minimum period of 2 years after completing his studies in the United States.

In a Progress Report published by the State Department on March 8, 1966 it was reported that 3 percent of all exchange visitors remained in the United States. In another study which covered 3 years (1962–64), it was reported that 90,350 Exchange Visitors arrived in the United States and 1,528 (1.6 percent) adjusted their status. In absolute terms this is not a large number. In relative terms it is significant. Unfortunately, data were not available on the number, or percentages of these Exchange Visitors who were physicians. The point is, however, that there is a growing concern over the number of students who will choose to remain when it is possible to obtain an immigrant visa rather than an Exchange Visitor's Visa with the 2-year commitment to reside outside the United States.

Senators Eastland and McClellan may have perceived the possibility of a brain drain when they wrote their dissenting opinion on the Immigration Act of 1965 and warned the Senate Committee on the Judiciary of possible trouble. Others contended, however, that thousands of Americans had studied abroad under the auspices of the exchange programs. Many chose to remain, and there are no indications that this has had a deleterious effect upon the sending country or the receiving country. Very few of these expatriate American students have actually emigrated to the countries where they have decided to reside.

Since the INS keeps no record of exits from the United States, data are still incomplete on how many Exchange Students exit the United States for the required period of 2 years and subsequently return. It is also unknown how many foreign medical graduates are among the Exchange Visitors who apply for waivers of this residency requirement, or who leave the United States for 2 years and later return as immigrants. Professor Grubel estimates that 10 percent of all Exchange Visitors remain permanently in the United States ("Nonreturning Foreign Students and the Cost of Student Exchange", *Exchange,* Spring, 1966). While the State Department suggests that only 1.6 percent of all Exchange Visitors remain in the United States, there is ample evidence of concern over the nonreturning student.

Public Law 87–256, which was enacted on September 21, 1961 in connection with the Fullbright-Hayes Act, stipulates that the "Attorney General may waive the requirement of the 2-year foreign residency abroad in the case of any alien whose admission to the United States is found by the Attorney General to be in the public interest". It is unknown how many foreign medical graduates have taken advantage of this provision, but the Department of State has received such a large number of applications for waiver of the 2-year residence requirement that it has established an Exchange Visitor's Waiver Review Board. This Board is served by two Executive Secretaries, one of whom receives applications for waivers by Exchange Visitors in the health and biomedical fields alone. The second secretary receives applications from all fields other than health.

In addition to the J or Exchange Visitor's Visa, there are several other types of visas which permit students to come to the United States. Unlike the J visas, these other types do not require the alien to exit from the United States after completion of his studies. However, an alien student must apply for an extension of his stay and present good reasons for extending it.

The most common student visa is the J type. The second is type F, which is for unsponsored students. Between 1962 and 1964 the State Department estimated the arrival of 125,145 unsponsored students. Of these 11,387 (9 percent) adjusted their status to immigrant or permanent resident (U.S. Dept. of State Study of fiscal year 1962–64 . Once again, it is unknown how many foreign medical graduates enter the United States with F-type visas. As a result, it is impossible to estimate how many of the 11,387 aliens with F visas who readjusted their status were foreign medical graduates.

There are innumerable other types of visas, which cover the alphabet from A, through SE–3. However, the majority of these are applicable only in very special circumstances and are fairly rigidly controlled. For example, it is possible for a student to possess an A-type visa, but this is applicable only to persons (including family members) entitled to diplomatic status. Another type is the H visa, but this is reserved for various classes of "aliens of distinguished merit and ability." Usually a professor qualifies in this category, not a student. But a cabaret singer will also qualify. Other examples are: NATO visas—for personnel representing NATO countries; SE–1 visas—for alien employees of the U.S. Government abroad; SD–1—ministers of religion; etc., *ad infinitum.*

To summarize, then, there are three types of visas which are most commonly issued for students coming to the U.S.—the J, the F, and the immigrant visas. The J type connotes a sponsored, exchange visitors and carries with it the responsibility for its bearer to return to his home country, or a third country, for a minimum period of 2 years. The F type is for an unsponsored student, is issued for an academic year, and can be extended. The immigrant visa is just what its name implies. The holder of an immigrant visa may lawfully enter the U.S. and assume the status of an alien resident.

It is perfectly clear that an immigrant visa is intended for immigrants, not students. And yet, for many years prior to the Act of 1965 it was sometimes easier for a South American to obtain an immigrant visa than other types. It is virtually certain that many students from Latin America entering the United States with immigrant visas had no intention of remaining permanently. Thus, figures depicting large numbers of students with immigrant visas from South America must be viewed with caution.

On the other hand, students with F- and J-type visas have many alternatives once they get into the United States. To adjust their status is not always an easy matter, but it is quite possible to do so. An alien can marry a U.S. citizen and change his status. He can apply for a waiver; he can extend his studies over long periods of time; he can request a change of status and petition INS for a permanent resident status. The major obstacle has always been the first entry into the United States. After this has been achieved, resourceful aliens generally can devise a method for prolonging their stay, or remaining indefinitely.

The most significant fact here is to recognize the new implications of the Act of 1965; that is, it may no longer be necessary for students to amend their status or devise other methods if they desire to remain in the United States. With the passage of the new act the process of obtaining an immigrant visa has been radically altered.

The New Immigrant. It appears that the basic philosophy of the Immigration Act of 1965 is to restrict general immigration and make it selective through laws which favor individuals with high levels of training. This new act abandons America's long-established national origins basis of quota allocations for immigration. Beginning July 1, 1968 immigrants will be admitted on the basis of the order in which they apply for visas, regardless of their country of birth. The supporters and framers of this new act were intent upon abolishing the inequities of the old law. At the same time they did not wish to open new flood gates for indiscriminate immigration. What is now occuring was unforeseen, however; on the one hand, unskilled labor (generally domestic help) is pouring in; on the other hand, persons possessing skills of which there is a shortage in the United States are also arriving in large numbers.

The FMG and America's New Open-Door Policy. Nowhere has the impact of foreign students in America been more pronounced than in the medical field. It should be made crystal clear at this point that foreign medical graduates represent a special situation. While the large majority of them come to the United States with Exchange Visitor Visas (J visas), they are far more than students. They have received their education abroad and come to this country for advanced training. But they also supply skills and services of which there is a shortage in the United States. They are paid for these services and are, therefore, a part of the U.S. labor market. They assume duties which include caring for U.S. citizens and are, therefore, entrusted with heavy responsibilities.

Inadvertently perhaps the new Immigration Act favors physicians. This is partially due to America's physician shortage, but also it is quite apparent that a physician is the prototype envisaged in the new act's "preference" categories (3) and (6). Their acceptability is further enhanced by the decision of the U.S. Department of Labor which rules that there is a shortage of physicians in the United States and, therefore, no Labor Department clearance is necessary prior to the issuance of an immigrant visa for a physician. An alien physician may send his petition for an immigrant visa (Form 1–140) directly to the Immigration and Naturalization Service. Other petitioners for such a visa must first be approved by the Department of Labor (Form 575A).

If an alien physician's supporting documents are in order, INS adjudicates the alien clearance, and the consular officer abroad is notified that he may issue an immigrant visa. Under the terms of the Labor Department's definition of a physician, the alien physician must show evidence with supporting documents that (1) He is a graduate of a U.S. medical school, or (2) he is a graduate of a foreign medical school and has passed the ECFMG examination, or (3) that he is a graduate of a foreign medical school and has a full, unrestricted license to practice medicine and 2 years gainful employment in his profession. In support of the Labor Department, the State Department has notified its consulates abroad (Airgrams in 1963, 1965, and 1966) that consular officers should stress the need for ECFMG certification but that a full, unrestricted license to practice medicine and 2 years gainful employment may be accepted in lieu of the ECFMG certification. For the purposes of the INS it is the intention of the foreign medical graduate which is the main consideration. If the alien petitions for an immigrant visa with the intent to practice medicine, this satisfies INS requirements.

Point 3 of the Labor Department's ruling is inconsistent with existing policies in effect in all U.S. States. The Labor Department, the State Department, and the INS permit physicians without ECFMG certification to enter the United States with immigrant visas and with the intent to practice their profession. In point of fact they cannot legally do so.

Since 1960 all physicians from countries outside of the United States and Canada have been required to pass the ECFMG examination before they are considered qualified to obtain clinical training in approved U.S. hospitals. Additionally, 43 of the 55 State and Territorial Jurisdictions in the United States require that physicians trained in foreign countries other than Canada pass the ECFMG examination as a prerequisite to admission to their licensing examinations. Of the twelve remaining jurisdictions three—Arkansas, Louisiana and Nevada—accept no FMGs. The other nine States or Territories impose a range of other restrictions. For example, California requires a 2-year internship in an approved U.S. hospital. Delaware requires a 1-year residency period in that State. Illinois will issue a limited license, pursuant to regulations established by the Illinois State Board of Examiners. Indiana requires 2 years of postgraduate training in an approved U.S. hospital and U.S. citizenship. Kansas has stipulations governing the type of evidence an FMG must present, such as his college curriculum, diploma, and license. In New Jersey an FMG must present evidence of having had at least 3 years of training in a hospital approved by the State Board. In New York the Board of Regents maintains a list of accepted medical schools. Graduates of schools not on this list may be required to take additional training in an approved U.S. hospital. Also, the ECFMG Examination "or its equivalent" is required. Puerto Rico requires full U.S. citizenship, and the Virgin Islands require a 6-month residency period. (*State Board Number,* JAMA, Vol. 200, pp. 1106, June 19, 1967).

Conclusion. Basically, one can draw five conclusions from this brief analysis of U.S. immigration policies.

The first is that the United States has a long history of stringent restrictions governing immigration, and the Immigration Act of 1965 was a serious attempt to alleviate the inequities of the old system.

Second, a new set of priorities have superseded the old quota restrictions. The implementation of the new act tends (1) to encourage physicians to immigrate to the United States because they are given preferential status; and (2) to allow entry into the United States of physicians from developing countries on the same basis as those from northwestern Europe. The forces of "push" and "pull" have been unleashed. For example, a substantial number of FMGs who were new licenciates in the United States in 1965 were from nine developing countries: Argentina, Colombia, Formosa, India, Iran, Korea, Pakistan, Philippines, and Turkey. These nine nations contributed 471 new licenciates to the total of 1,488 in 1965. This represents over 30 percent of all new licenciates.

Third, immigration visas are issued to foreign medical graduates by consular officers on the premise that their intention to practice their art in the United States is compatible with their ability to do so within the framework of existing State laws. In actuality, this is not the case.

Fourth, from all available evidence, it is virtually certain that the flow of FMGs into the United States will increase, since their numbers had steadily risen prior to the 1965 Immigration Act. When the quota restrictions are put on a first-come, first-served basis in July of 1968 and physicians remain in the third and sixth categories, FMGs may readily obtain immigrant visas.

Fifth, the recipient of an immigrant visa does not always immigrate permanently to the United States, but the fact that immigration has been made easier for physicians may act as a catalyst for permanent residence in the future.

Item 3. Recommendations on Data Gathering for Health Manpower Planning

There has been a frequently expressed desire for a better system of collection, compilation, analysis and distribution of data regarding the migration of professionals on a worldwide basis. Any methods which are devised should include statistics on the migration of physicians. More specifically for the United States, a more effective program of data collection and reporting should be devised for foreign medical graduates. Interested and responsible organizations should be able, at any given time, to establish the region of origin of an FMG, his training experience in the United States, and his subsequent migration.

Foreign medical graduates are granted permission to enter the United States in accordance with the regulations of the Immigration and Naturalization Service, and certain restrictions are placed upon their professional activities while they are in training programs, or after their training period ends and they choose to remain in the United States. (This does not apply to U.S. citizens who have trained abroad.) As a consequence, they, like all other aliens, have legal obligations to report their status to the INS until they have become naturalized citizens, and it is the prerogative of the INS to determine the nature of the information it requires.

FMGs enter the United States under various types of visa arrangements, and in many instances they have specific obligations to their home countries. It is the privilege of an FMG's home country to stipulate the terms under which he is permitted to leave his country. Some nations prescribe certain programs for their FMGs to pursue in the United States. They may enter into formal repatriation contracts with their physicians which often include formalized bonds. On the other hand, the United States frequently puts statutory limitations on the duration of an FMG's stay in this country. This limitation is contingent upon the type of visa which is granted. It is obviously imperative that responsible persons be cognizant of the formal restraints which every FMG has, restraints which are imposed either by his home country or by the United States.

Foreign medical graduates represent a sizable and growing portion of the U.S. health manpower pool. In 1966 foreign medical graduates represented over 29 percent of all graduate medical trainees in the United States, and in the past 5 years 7,182 FMGs have been licensed to practice medicine in the United States. It is known that there are at least 45,000 FMGs in the United States today, and virtually all are engaged in some form of medical activity. In order to measure the health manpower segment in the United States and to provide clear easily definable trends in the flow of foreign medical graduates into, within, and outside of the United States, it is essential that accurate records be maintained and reported.

The importance of such data is acknowledged by U.S. Government agencies, by the governments of countries who are losing physician manpower through emigration, by professional and educational bodies, and by national and international organizations who are concerned with health manpower issues. Since data on foreign medical graduates cannot logically be separated from all data relative to health manpower, it would be wise to emphasize the panel's special interest in data on FMGs but to recognize the importance of such data in connection with the commission's concern with all U.S. health personnel.

Basically, there are two primary sources of information on health manpower: private organizations and governmental agencies. The records of voluntary private organizations such as the AMA, the AAMC, and the AHA are replete with useful information. Within the Federal Government such agencies as the Departments of Labor, State, and Justice as well as HEW, maintain extensive collections of data. From all of these sources, in addition to many others, it is possible to obtain a wealth of information on FMGs. However, there should be a systematic method of coordinating the efforts of these groups, and the INS is one of the logical agencies through which this could be accomplished. The statutory requirements of the INS include the administering of "immigration and naturalization laws relating to the admission, exclusion and deportation of aliens, and the naturalization of aliens lawfully resident in the United States. It investigates alleged violations of those laws and makes recommendations for prosecutions when deemed advisable." [1]

There are three basic deficiencies in the present system under which the INS operates. The first is its failure to report fully the information which it has. For example, a complete report could be given on the number of FMGs who arrive in the United States each year, on the types of visas these FMGs have, on the number who possess ECFMG certification, and on the number who arrived without ECFMG certification but with a full, unrestricted license to practice. The second deficiency is the failure of the INS to compile more thoroughly the information at its disposal. For example, the INS should know how many FMGs leave the United States every year. And the third area where deficiencies in the INS exist is the inability to collect information which is necessary to its own purposes. For example, the INS requires that every alien residing in the United States complete an I53 card (Alien Registration Card) each year in January. In 1967, the INS received less 153 cards for alien physicians than the known number of alien FMGs in this country.

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[1] Federal Register, 1966–67, p. 229.

The Immigration and Naturalization Service acquires its data through the various documents surrendered by visa holders upon entry into and exit from the United States and by a compilation of all Alien Registration Cards. It is in the process of a "study phase" for a totally computerized data collection system which can lead to continuous analytical reviews and reporting of the flow of FMGs into, within and outside of the United States.

Of urgent interest is information regarding the FMGs who enter the United States without ECFMG certification. This new type of entry grew out of the Department of Labor's definition of a "physician" for immigration purposes (see the statement on immigration policies, p. 6). This ruling is inconsistent with the State licensure regulations and the rules governing approved internship and residencies. It also fails to meet its original intent which was to alleviate our physician manpower shortage.

Simple collection of data per se is not sufficient, for data must also be supplied regularly to interested and appropriate agencies (for example, HEW, ECFMG, PHS, AID, AMA, AAMC, etc.), for their analysis and utilization. The method and manner of reporting deserve as much attention and review as does the collection of the data to be reported. There are even now data which have been collected and which could and should be utilized more effectively. There are also other data which are not available but which would contribute greatly to a more adequate basis for health manpower planning.

It is clear that accurate collection and reporting of essential data regarding FMGs cannot be achieved under present circumstances but could be achieved if certain specific, corrective actions are taken. The changes required are of two kinds.

The first of these involves the introduction of new standards for data collection. These should be based on the use of the best available methods, particularly within the INS, to guarantee maximum coverage, accuracy, and distribution of the data. Furthermore, the procedures followed should at all times reflect the many needs which exist for valid health manpower information.

The second, associated measure is the establishment of an effective system for functional utilization of data from all sources. This can be accomplished through the coordination of a number of governmental and nongovernmental organizations which can contribute to and benefit from their joint activities. Their common needs could best be served by the creation of a central clearinghouse within the Department of Health, Education, and Welfare, which would work in close association with the INS and also with the private organizations which are concerned with and responsible for health manpower in the United States.

There is growing acceptance of the need for sensible, continuous, and long-term health manpower planning. Past efforts have been hindered by faulty judgments which are an inevitable result of inaccurate or incomplete data. As we enter a new era of mature efforts to meet expanding national health needs, the demands for full and accurate information will grow. The challenges to be faced are great enough to merit every reasonable effort to provide a secure foundation in fact for the many important decisions to be made.

Item 4. Random Survey of U.S. Hospitals With Approved Internships and Residencies: A Study of the Professional Qualities of Foreign Medical Graduates

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In 1967 Margulies, Bloch, and Cholko conducted a study of foreign medical graduates for the Association of American Medical Colleges and the National Advisory Commission on Health Manpower. The survey was confined to FMGs who were serving as interns and residents in approved U.S. hospital training programs. The evaluation was based on a direct comparison between FMGs and USMGs who were on the same hospital service, under the same supervision, receiving the same training, and with like patient care responsibilties. Evaluations of individual professional competence were made by those members of the teaching staff who were in charge of the internship or specialty service on which the FMG and USMG were serving. A total of 156 hospitals were surveyed in which 296 FMGs and 166 USMGs were evaluated. The larger number of FMGs represents the participation of hospitals which had only FMGs on their house staff. Hospitals which filled all their positions with USMGs were not included in the study. Hospitals were otherwise selected by random sampling, and the individuals studied were selected on a proportionally representative basis with the names provided by us rather than the participating hospitals.

Professional competence was judged by responses to the fifteen questions on the "intern-resident evaluation" which follows:

CONFIDENTIAL

Code No.__________

Date____________________

To Be Completed by Program Director or Chief of Service

INTERN-RESIDENT EVALUATION

NAME ____________________________________Code No.__________

1. *Acclimatization*

Graduates from medical schools, both in the U. S. and abroad, enter hospitals with varying educational and social backgrounds. They must all be prepared, however, to adjust to their new surroundings and to a new way of life. How would you rate his/her ability to adjust to this new environment?

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

2. *Discipline*

Upon entering the new environment of a hospital, interns and residents have to accept certain controls and restrictions along with their new professional responsibilities. How would you rate his/her acceptance of these new disciplines?

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

3. *General Duties*

A. Intern

An *Intern* assumes a multiplicity of duties other than those relating strictly to patient care (such as: attending seminars, instructing the nurses, handling insurance forms, using the laboratory, etc.) How would you rate him/her in the performance of these duties?

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

B. Resident

A *Resident* has a similar variety of general duties and responsibilties in addition to those involving patient care. How would you rate him/her in the performance of these duties?

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

4. *History Taking*

One of the most important aspects of the training of interns and residents is the development of expertise in history taking. With regard to history taking how would you rate him/her?

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

5. *Physical Examinations*

Of vital importance is the ability to conduct a thorough physical examination. Would you say that his/her skill in taking physical examinations is:

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

6. *Basic Medical Sciences*

Comparative studies conducted on medical education suggest that medical schools throughout the world vary in the emphasis placed on the teaching of basic medical sciences. Would you say that his/her knowledge of basic medical sciences is:

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

7. *Doctor-Patient Relationship*

A very important part of the intern/resident experience is the "inculcation of the concept that medicine is an art . . . the primary purpose of which is the care and treatment of the patient as an individual in addition to emphasis on scientific and objective study of disease." (AMA) How would you rate him/her with regard to his/her understanding and practice of this concept?

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

8. *Doctor-Staff Relationship*

Another essential in intern/resident training is the ability of the house officer to work effectively with the members of the hospital staff. In this respect, how would you rate him/her?

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

9. *Personal Relationships*

In the intern/resident training period members of the house staff must live and work in close association with one another. How would you rate his/her ability to form a satisfactory personal relationship with his/her colleagues?

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

10. *Libraries*

Effective use of the library will generally be reflected in the quality of the work of an intern or resident. How would you rate his/her utilization of your library?

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

11. *Supervision*

A. Intern

It is a stated goal (AMA: Essentials of an Approved Internship) of an internship program that it "should be so organized and administered that it emphasizes the beginning and the progressive increase of the assumption of personal responsibility for the care of the sick; the recognition and the cultivation of the personal aspects of the treatment of patients, including family, social, financial, and moral factors; and the inculcation from first-hand experience of the principles of medical ethics and the code of professional conduct."

How would you rate him/her with regard to his/her ability to discharge such responsibilities with decreasing direct supervision?

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

B. Resident

The AMA includes in the Essentials of Approved Residencies the statement: "Aside from the daily contact with patients and the attending staff, and participation in the organized education program, the assumption of responsibility is a most important aspect of residency training. Accordingly, as ability is demonstrated, an increasing amount of reliance should be placed in the judgment of residents in diagnosis and treatment, as well as in the teaching of interns and medical students. In surgery and the surgical specialties, the resident should be given ample opportunity to perform major surgical procedures under supervision, particularly in the later stages of his training . . . "

In this connection, how would you rate his/her ability to discharge such responsibilities with decreasing direct supervision?

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

12. *Learning Processes*

Interns and residents must acquire many new skills and considerable medical knowledge in a relatively short period of time. How would you rate his/her ability to learn rapidly?

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

13. *The Teaching Staff and the House Staff*

Members of the teaching staff and house staff should derive mutual stimulation from their learning experiences. Is his/her effect on the teaching staff:

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

14. *Independent Learning*

An accepted goal in medical education is the graduation of physicians who are able to continue learning independently throughout their lifetime. How would you rate his/her ability to learn independently?

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

15. *Professional Competence*

A. Intern

While the internship is usually followed by additional hospital training, it is possible for a doctor to go into private practice after completing his internship. At the end of his internship, how would you rate ______________________ potential as a practicing physician in your community?

☐ (1) Very good
☐ (2) Good
☐ (3) Acceptable
☐ (4) Poor

B. Resident

______________________ is specializing in ______________________.

When his/her residency period ends, how would you rate his/her potential as a practicing physician in your community?

- ☐ **(1) Very good**
- ☐ **(2) Good**
- ☐ **(3) Acceptable**
- ☐ **(4) Poor**

16. In the preceding questions you have been asked to evaluate this house officer on the basis of criteria selected by us. Perhaps you feel that there are other issues related to our questions on which you wish to comment. If you care to make any further observations, please feel free to do so in the space provided below.

Over 90 percent of the hospitals responded to the questionnaire with the participation of 271 chiefs-of-service, program directors, or directors of education. The FMGs included graduates of 85 medical schools and their counterparts represented graduates of 71 U.S. medical schools. The results are summarized in the following table. It should be noted that a higher number represents a lower grade for the individual, the best score on a question was 1 and the worst was 4.

TABLE 1. *Scores obtained by FMGs and USMGs on the 15 individual questions*

Question	Paired USMGs		Paired FMGs		Unpaired FMGs	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Acclimatization	1.4788	0.7352	[1] 1.8795	0.8698	1.6923	0.7731
Discipline	1.6687	0.8808	1.7229	0.8113	1.6769	0.7668
General duties	1.6182	0.7424	[1] 2.0909	0.9133	[2] 2.0000	0.9446
History taking	1.5855	0.6534	[1] 2.1523	0.8593	[2] 2.0806	0.8386
Physicial examinations	1.6463	0.6368	[1] 2.0959	0.8385	[2] 2.0650	0.7623
Basic medical sciences	1.7229	0.6910	[1] 2.4634	0.9133	[2] 2.3846	0.8538
Doctor-patient relationship	1.4967	0.6893	[1] 1.9733	0.8402	[2] 1.9449	0.8631
Doctor-staff relationship	1.6084	0.8197	1.8072	1.8208	1.8217	0.8667
Personal relationships	1.5482	0.8033	1.7530	0.7872	[2] 1.7984	0.8201
Libraries	1.9030	0.7154	[1] 2.1779	0.8787	2.1085	0.9170
Supervision	1.6988	0.7798	[1] 2.2061	0.9045	[2] 2.1318	0.9349
Learning processes	1.6325	0.7222	[1] 2.0783	0.9248	[2] 1.9385	0.8571
The teaching staff and the house staff	1.8253	0.8212	[1] 2.4000	0.9957	[2] 2.3462	0.9900
Independent learning	1.7108	0.7034	[1] 2.2289	0.9547	[2] 2.0853	0.9320
Potential for medical practice	1.5951	0.7960	[1] 2.2209	0.9909	[2] 2.1846	0.9264

[1] Significant difference of paired FMGs from paired USMGs at .01 level of significance, using *t*.

[2] Significant difference of unpaired FMGs from paired USMGs at .01 level of significance, using *t*.

With the exception of the questions relating to personal characteristics, such as acclimatization and acceptance of discipline, the 271 evaluators rated the FMGs significantly lower in competence than their USMG counterparts. This statistically significant difference emerged on every question which measured professional skills and verified the judgment that, as a group, the FMGs have a limited capacity for independent learning, require (but do not receive) close supervision, and are predictably less suitable than are the USMGs to become members of the local medical community. FMGs were rated the same whether or not they were employed by hospitals which also had USMG interns and residents.

A separate questionnaire was sent to the 172 hospital administrators for more generalized comments. The 156 who responded expressed a national awareness of wide differences among FMGs as physicians. FMGs also were reported to have important language problems, and a dragging rather than stimulating effect on the teaching staff. The unpredictability of foreign medical schools was dramatically illustrated by the fact that the same foreign medical school was selected by different hospitals most frequently as the one which has supplied the "best" and the "worst" interns and residents.

This study made no effort to answer three questions which are of critical importance: Whether FMGs fail to meet minimum standards of medical competence for the United States; whether they provide minimally adequate medical care in and out of the hospitals in this country; whether they are prepared for the health care needs of their own people. Rather, it extended the accepted practice in the United States of evaluating student performance through the observations of their supervisors and mentors. It did not conclude that FMGs are professionally incompetent; it did establish the fact that they represent a level of competence significantly lower than the USMGs in the same programs of graduate education.

TABLE 1A. *Additions to medical profession representing graduates of foreign medical facilities, 1950–65*

Year	Examination	Reciprocity and endorsement	Totals
1950	267	41	308
1951	425	25	450
1952	545	24	569
1953	662	23	685
1954	749	23	772
1955	881	26	907
1956	834	18	852
1957	991	23	1, 014
1958	1, 129	37	1, 166
1959	1, 605	21	1, 626
1960	1, 383	36	1, 419
1961	1, 557	23	1, 580
1962	1, 333	24	1, 357
1963	1, 409	42	1, 451
1964	1, 239	67	1, 306
1965	[1] 1, 468	[2] 60	1, 488
1966	1, 352	58	1, 410
Totals	17, 829	571	18, 400

[1] 35 additional licenses added to last year's figure because three boards were late with reports: Calif (10); Mass (20); Virgin Islands (5).

[2] 5 additional licenses added to last year's figure for Guam which was late in reporting.

Source: JAMA vol. 200, No. 12, June 19, 1967.

TABLE 2A. *Physicians examined on the basis of credentials obtained in countries other than the United States and Canada, 1935–65*

Year	Number examined	Passed	Percentage failed
1935	437	303	30.7
1936	568	382	35.0
1937	920	637	30.8
1938	1,164	716	38.5
1939	1,691	839	50.4
1940	2,088	948	54.7
1941	1,717	698	59.2
1942	1,630	890	45.4
1943	1,031	518	49.8
1944	691	325	53.0
1945	475	209	56.0
1946	495	221	55.3
1947	601	283	52.9
1948	639	311	51.3
1949	737	319	56.7
1950	799	359	55.0
1951	1,006	524	47.9
1952	1,208	648	46.3
1953	1,463	796	46.3
1954	1,642	943	42.6
1955	1,771	1,042	41.4
1956	1,783	1,012	43.2
1957	2,299	1,345	41.5
1958	2,567	1,518	40.9
1959	2,766	1,870	32.4
1960	2,864	2,013	29.7
1961	2,683	1,890	29.0
1962	2,960	1,980	33.1
1963	2,781	1,861	33.1
1964	3,246	2,215	31.8
1965	3,011	2,043	32.1
1966	3,691	2,281	38.1
Totals	53,444	31,939	40.2

SOURCE: JAMA vol. 200, No. 12, June 19, 1967.

TABLE 3A. *Graduates of foreign medical schools representing additions to the medical profession, 1966*

	Examination	Reciprocity and endorsement	Total
Alabama	0	0	0
Alaska	0	0	0
Arizona	1	0	1
Arkansas	0	0	0
California	46	0	46
Colorado	3	0	3
Connecticut	34	0	34
Delaware	3	1	4
District of Columbia	30	2	32
Florida	15	0	15
Georgia	13	0	13
Guam	0	8	8
Hawaii	7	0	7
Idaho	0	0	0
Illinois	77	0	77
Indiana	68	0	68
Iowa	5	5	10
Kansas	5	0	5
Kentucky	28	0	28
Louisiana	1	0	1
Maine	43	2	45
Maryland	130	0	130
Massachusetts	25	0	25
Michigan	49	0	49
Minnesota	19	0	19
Mississippi	3	0	3
Missouri	12	0	12
Montana	0	0	0
Nebraska	0	0	0
Nevada	0	0	0
New Hampshire	9	11	20
New Jersey	57	0	57
New Mexico	5	0	5
New York	197	17	214

TABLE 3A. *Graduates of foreign medical schools representing additions to the medical profession, 1966*—Continued

	Examination	Reciprocity and endorsement	Total
North Carolina	0	1	1
North Dakota	7	0	7
Ohio	16	1	17
Oklahoma	2	0	2
Oregon	4	0	4
Pennsylvania	144	0	144
Puerto Rico	5	0	5
Rhode Island	9	0	9
South Carolina	0	0	0
South Dakota	6	0	6
Tennessee	0	0	0
Texas	100	1	101
Utah	0	0	0
Vermont	35	8	43
Virgin Islands	4	0	4
Virginia	73	0	73
Washington	34	0	34
West Virginia	5	0	5
Wisconsin	23	0	23
Wyoming	0	1	1
Totals	1, 352	58	1, 410

SOURCE: JAMA vol. 200, No. 12, June 19, 1967.

TABLE 4A. *Licentiates representing additions to the medical profession, 1935–66*

Year	Examinations	Reciprocity and endorsement	Total
1935	5, 099	411	5, 510
1936	5, 548	629	6, 177
1937	5, 812	612	6, 424
1938	5, 759	501	6, 260
1939	5, 584	460	6, 044
1940	5, 432	455	5, 887
1941	5, 241	474	5, 715
1942	5, 560	454	6, 014
1943	5, 586	372	5, 958
1944	6, 495	470	6, 965
1945	4, 979	769	5, 748
1946	5, 362	1, 608	6, 970
1947	5, 273	1, 617	6, 890
1948	4, 942	1, 694	6, 636
1949	4, 260	1, 616	5, 876
1950	4, 609	1, 393	6, 002
1951	4, 985	1, 288	6, 273
1952	5, 168	1, 717	6, 885
1953	5, 388	1, 888	7, 276
1954	5, 897	2, 020	7, 917
1955	6, 211	1, 526	7, 737
1956	6, 035	1, 428	7, 463
1957	5, 872	1, 583	7, 455
1958	6, 155	1, 654	7, 809
1959	6, 490	1, 779	8, 269
1960	6, 225	1, 805	8, 030
1961	6, 137	1, 886	8, 023
1962	5, 687	2, 318	8, 005
1963	5, 812	2, 471	8, 283
1964	5, 239	2, 672	7, 911
1965	[1] 5, 699	[2] 3, 448	9, 147
1966	5, 437	3, 159	8, 596
Totals	177, 978	46, 177	224, 155

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[1] First licenses for three boards which were late in submitting 1965 reports were added to last years figure as follows: California (15); Massachusetts (23); Virgin Islands (5).

[2] First licenses for three boards which were late in submitting 1965 reports were added to last years figure as follows: California (2); Massachusetts (153); Guam (6).

Source: JAMA vol. 200, No. 12, June 19, 1967.

Report of the Panel on Hospital Care

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Introduction

The central importance of patient care in short-term, general hospitals and the magnitude of problems associated with its provision led this panel to concentrate its limited time and resources on issues related to this type of hospital care. There are important, separate problems associated with other types of institutional health care delivery, treated only peripherally in our discussions, that merit further study.

Throughout its deliberations, the panel was constantly aware of the complexity of the issues and the need for more data and further research to better define the alternatives. Although some of the panel's recommendations suggest specific approaches for dealing with major problems, we wish to emphasize that flexibility, experimentation and change are essential if the approaches are to lead to improved health care. It will require imaginative but responsible management to develop programs that will improve and not disrupt the present system of delivering care.

The health industry is a service industry; and therefore manpower is the key problem. Growing demands for hospital care and changes in medical technology have combined to strain the supply of skilled personnel, driving up wages and therefore prices. The panel believes that the strain on the supply of personnel will continue and that wage increases greater than productivity increases will continue to force up the cost of hospital care. Also, however, we believe that present problems and unevenness in the provision of quality hospital care provide opportunities for improving the productivity of health manpower and thus easing the pressures on personnel and prices.

Taking advantage of these opportunities will require studying different approaches to economically and effectively delivering medical care. Recent legislation, including the Heart, Cancer, and Stroke Program, Medicare, and new planning legislation will provide chances to experiment and improve understanding not available heretofore. Further, the panel suggests trying a number of specific steps that appear to hold promise for improving the delivery of health care.

Hospital Care in the United States

Importance of the General Hospital

The short-term, general hospital is the central focus of today's medical care. This type of hospital accounts for over two-thirds of the personnel employed in all type of hospitals; it consumes the largest single fraction of the consumer's medical care dollar; it is the location of the most critical (both technically and emotionally) medical care services; it is the physician's key to high professional and economic standing; and in most communities, it is the center of community participation in medical care.

Although long-term hospitals (primarily mental institutions) are important in terms of numbers of patients and beds, most of the care provided therein is custodial and is provided to a limited population for extended periods. In terms of the number of people served and the resources used, general hospitals are far more important. They account for over 90 percent of all hospital admissions, and over 70 percent of all hospital personnel and hospital-care expenditures.

During the period from 1955 to 1965, the number of hospitals of all types in the United States increased by 2 percent; admissions by 30 percent; personnel employed by 45 percent, and total costs by 215 percent. Although the total number of hospitals increased only 2 percent during the decade, the number of non-Federal, short-term, general hospitals increased by 8 percent and their bed capacity was up by 25 percent. Small hospitals (less than 100 beds) account for 60 percent of the general hospitals but contain only 22 percent of the total beds. Large hospitals (300 beds or more) represent 10 percent of general hospitals but 40 percent of the total beds.

Overall, the length of stay has been remarkably steady in recent years; however, there was a sharp increase in the length of stay of patients over 65 in the second half of 1966. During this period of growth, there has been a steady increase in the number of facilities and services offered by the Nation's hospitals. Also, there has been substantial growth in accreditation of hospitals and of approval of educational programs by national agencies.

Major Problems in Hospital Care

1. Increasing Demands for Hospital Services. Hospital use has been growing not only because the population has been growing but also because people are using the hospital more often. In 1950, short-term, general hospitals admitted 110 people per thousand, and by 1965, this rate had reached 138 people per thousand. During this period new construction nearly kept pace, so that occupancy rates between 1950 and 1965 rose only from 74 to 76 percent. Not only are people entering the hospital more often, but they are requiring increasingly sophisticated and specialized services. Hospitals are also being pressured to extend the scope of their responsibility by providing outpatient, extended care, and rehabilitation facilities, and by developing home-care programs.

2. Shortage of Skilled Personnel. By itself, the growth in demand for hospital services would have strained the supply of skilled hospital personnel. The strain has been heightened by changes in hospital practice that have increased the required numbers of personnel per patient. As a result, personnel employed in short-term, general hospitals increased nearly 30 percent between 1960 and 1965.

Approximately 1,500 hospitals, representing 50 percent of beds, depend upon interns and residents to supply medical staff support, yet even though large numbers of less qualified graduates of foreign medical schools are used in these positions, only 65 percent of available positions can be filled.

The desire of hospitals to provide medical staff support is tempered by the unwillingness of health insurors to recognize the cost of full-time staff as part of the cost of medical care. If this policy should change, the shortage of personnel would become even more severe.

Nursing service (professional and nonprofessional) constitutes the largest single group of employees in hopitals, and many hospitals must operate with a severe, sometimes critical, shortage of qualified nurses. Although obtaining the desired number of nurses is a common problem for hospitals, there is considerable uncertainty about the extent to which a national shortage of nurses exists. First, there are wide variations in the availability and use of nurses among individual institutions, states, and regions. For example, some hospitals employ three times as many nurses as others of similar size and organization. Second, nurse-staffing guides based on a sound analysis of patient needs do not exist, making it difficult to determine the extent to which shortages perceived by hospital administrators actually detract from patient care. Third, there is a large pool of professional nurses who are not practicing—perhaps more than 500,000, compared to the approximately 400,000 who are currently employed in hospitals and related institutions. Rising salary levels may well attract many of these nonpracticing nurses back into the hospital labor force.

*3. **Antiquated Facilities.*** Although 350,000 general hospital beds and related facilities, costing over $8 billion (Federal funds supplying $2.5 billion), have been built under the Hill-Burton/Hill-Harris program during the past 25 years, much of this has been done in the smaller communities considered to have the greatest need. Many of the major hospitals in metropolitan areas, and these are the chief contributors to the education and training of health manpower, were built many decades ago. They were designed at a time when hospital care differed radically from that given today and have not been adequately replaced or modernized. Attempting to meet modern standards of care in such facilities is difficult if not impossible. The deficiences in design increase the cost and personnel involved in providing hospital care.

*4. **Shortage of Capital Financing.*** The capital needs of hospitals for financing modernization, extension of services, construction of new facilities, and development of new programs far exceeds the supply of funds currently available to them. Philanthropy is widely considered to be the major source of funds. Actually it provides only one-third of the total and is a declining share. Government furnishes an additional one-third, and the remainder comes from commercial borrowing and retained income.

Reimbursement formulas used by the Federal Government and most Blue Cross agencies provide for a level of payment that is inadequate to permit hospitals to finance replacement and normal expansion of new facilities and programs. Since funds generated through oprations are inadequate, hospital administrators continually struggle to increase their hospital's share of the funds available from various Federal and State grant programs, community fund-raising drives, and individual philanthropic donors. For most major hospitals, the struggle does not yield sufficient funds to meet the needs.

5. ***Organization of Health Facilities.*** In our Nation, facilities are largely unrelated to each other. Although it is true that doctors' offices, in increasing numbers, are becoming associated with general hospitals, the majority still are not. Some extended care facilities, and a few skilled nursing facilities, are associated with general hospitals but most are not. Homes for the aged and shelter-care homes are largely separated from other inpatient facilities. Mental health facilities and child care facilities are also, for the most part, separate institutions.

Patient needs would best be served by a system that insured communication between facilities, expedited patient transfers, and avoided duplication of services. Progress in these areas is discouragingly slow. The manpower and organizational needs to deliver acute medical care suggests that the general hospital should be the focal point for the management of all inpatient medical facilities. Centralization of resources communications and management are likely to provide a favorable atmosphere for the development of new technologies and the efficient administration of the broad spectrum of medical care. Efforts by those in the hospital field to achieve integration of facilities has so far met with limited success.

6. ***Extended Care Facilities.*** With the passage of the Medicare Law, much attention has been directed to extended care facilities. Historically, as convalescent hospitals, these units were adjuncts to or affiliated with general hospitals and designed to relieve acute bed shortages and provide a continuum of care in appropriate institutions. Now there are few convalescent hospitals, and Medicare certification for extended care has taken many of the best skilled-nursing-home beds that were formerly giving care to very long-term elderly patients. At the same time, the new convalescent units are detached from hospital supervision.

7. ***The Federal Hospital System.*** In 1965, there were 443 Federal hospitals, an increase of 11 in the past decade. These hospitals contained 150,000 beds and employed nearly 200,000 people. Total costs were approximately 1.5 billion dollars. These hospitals serve special groups of the Nation's citizens and are not available for the remainder of the population except in the case of emergency. In at least some instances, the

separation of facilities results in poorer care for both the special groups and the local, general population. Although recent legislation broadens the authority of the Veterans Administration to work with school-affiliated hospitals, there is a continuing controversy over whether or not Federal hospitals should be more integrated with general community facilities.

Deficiencies in Hospital Care

The problems listed above primarily reflect the concerns of those responsible for meeting the demands for hospital services. A different set of problems confront those who consume these services. These problems relate to the cost and the quality of hospital care. Hospitalization is expensive and it is getting more expensive. In 1965 the costs (excluding physician fees) associated with a typical hospital stay equalled $350; if recent trends continue, these costs will be nearly $600 in 1970.[1] The magnitude of the cost makes it important to the consumer that the cost is not incurred unnecessarily and that it is as low as is technically possible.

In the last 20 years the quality of care has improved dramatically, largely as a result of the rapid growth in understanding of the disease process in man. As understanding has increased, the variety and complexity of hospital services have grown. These changes have raised the potential of hospital care for treating illness, but they have also increased the difficulty of assuring that actual hospital practice conforms closely to current best practice. Because it is literally a life or death matter, the consumer should have assurance that the standards of care in hospitals are uniformly high.

There is considerable evidence that there is marked unevenness in our hospitals in terms of cost, utilization, and standards of care.

1. Wide Variations in Costs. All data collected on hospital operations shows wide variations among hospitals in costs, whether measured on the basis of bed days, patient days, or patient stays. Part of the variation is due to differences in treatment and services provided, and another part due to differences in wage rates. Even when allowances are made for these factors, however, substantial differences in costs among hospitals still remain.

In an effort to ascertain the extent of the variation in costs, the Panel analyzed data collected by Hospital Administrative Services (a service of the American Hospital Association) for two sets of hospitals. The first set of hospitals consisted of medium size (100 to 299 beds) and large size (300 to 400 beds) facilities located in a large metropolitan area. Since all were located in the same area, salary expenses and cost of living considerations exerted minimal influence on the cost of operations. Yet, total costs per patient day were almost evenly distributed over a range between $43 and $65. As compared to the lowest cost hospital, the highest cost hospital was 50 percent more expensive, and yet it was smaller and provided fewer services.

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[1] *Hospitals, Guide Issue,* Aug. 1, 1966. Costs are based on average per diem costs and length of stay in non-Federal, short-term, general and other special hospitals.

The second set of hospitals analyzed are all in the class of distinguished hospitals; all are recognized as providing excellent services, with the quality of staff considered nearly equivalent. Among the 12 hospitals considered, cost per patient day ranged from $54 to $110—a twofold difference. Even after adjustments for wage and salary differences were made, the twofold difference between high- and low-cost hospitals remained.[3]

Although cost data used in the two analyses were collected by a single agency using a single system of accounts, there may be some lack of uniformity in reported costs. It seems unlikely, however, that reporting errors are a significant contributory factor to the wide differences that were found in costs. Wide variations in costs were not confined merely to total cost, but appeared in every aspect of hospital operations—dietary, housekeeping, nursing, administration, etc.

The large variations found in cost per patient day are not attributable to differences in the scope or quality of services rendered, or in salaries and wages paid hospital personnel. The strong inference of these results is that there are widely varying degrees of efficiency among individual hospitals.

2. Unnecessary Hospitalization.—Hospital care is the most expensive type of medical care. In many instances, the services and facilities required to treat a specific medical condition are available only in the hospital. In such instances, the cost is clearly justified. In other instances, however, where there is no medical justification for hospitalization, the patient may still be placed in the hospital either to add to the convenience of the physician or to provide the patient with insurance coverage for diagnostic tests not covered on an outpatient basis. There is evidence that such unnecessary hospitalization is of significant extent.

Upon the recommendation of this Panel, the Commission sponsored a study of the Kaiser Foundation Medical Care Program, which provides comprehensive medical care on a prepaid basis to over 1.5 million persons in the Western United States. As judged by accreditation standards, approval by national professional bodies, and by the personal observations of two practicing internists attached to the Dean's Office of Harvard Medical School, the medical care provided within Kaiser was found to be of high quality.

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[3] See app. I for details of this analysis.

The individual Kaiser physician works in a financial and organization setting that exerts pressure upon him to avoid unnecessary medical procedures, and the inclusion of outpatient care in the Kaiser benefit package eliminates members' financial incentives to undergo hospitalization. Kaiser hospitalization rates in California differ markedly from the statewide experience: On an age-adjusted basis, the average Kaiser member spends only about three-fourths as many days per year in the hospital as does the average Californian.

A similar conclusion about hospitalization rates was reached by a study of Federal employees covered under various insurance plans.[3] The study found that, in every age category, nonmaternity hospital days per person covered under Blue Cross exceeded by at least 50 percent the days per year for those covered under a variety of prepaid group practice plans.

All studies that have compared hospitalization rates under various insurance plans have not found such favorable results for the prepaid group practice plans.[4] But, although there is not unanimity, the great preponderance of evidence indicates lower hospitalization under the group practice plans. The inference that this result is obtained by reducing unnecessary hospitalization is buttressed by the uniform finding that tonsillectomy rates are lower in group practice. Hospitalization rates for all types of surgery are generally lower under group practice, but again the finding is not unanimous.

3. Variations in the Quality of Care. Poor hospital care wastes both lives and resources. Unjustified surgery, improper diagnoses, and poor treatment can prolong illness, lead to complications, and sometimes result in avoidable disablement or death.

At its best, hospital care in the United States is probably the best in the world. Moreover, the medical and hospital professionals have, through voluntary efforts, initiated programs to try to upgrade the quality of medical care. The Joint Commission on Accreditation of Hospitals is the only voluntary organization in the world which is continually attempting to upgrade the quality of medical care in all hospitals. Unfortunately, deviations from best practice still exist in a large number of institutions.

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[3] George S. Perrott, "Utilization of Hospital Services," *American Journal of Public Health*, vol. 56, No. 1, January 1966.

[4] A. Donabedian, *A Review of Some Experiences with Prepaid Group Practice*, Bureau of Health Economics, Research Series No. 12, Ann Arbor, Michigan, 1965. This publication reviews and compares previous studies made of prepaid group practice.

Except for the voluntary program of the Joint Commission on Accreditation of Hospitals, which sets minimum standards, there is no other systematic evaluation of quality of care in the United States. Thus, it is impossible to make generalizations about the level of care provided in hospitals. Nevertheless, a sufficient number of studies of care have been made to demonstrate the existence of substantial variations among hospitals in the standards of practice. Results from a representative sample of these studies are cited below:

1. Using chart review by expert consultants, a study was made of the quality of care provided in two major teaching affiliates of medical schools and two community hospitals. Evaluations of care were made in three categories, medicine, surgery, and obstetrics/gynecology. The percentage of cases considered by the expert raters to have received fair or poor care in the two teaching hospitals as compared to the two community hospitals are as follows: Medicine—46 percent versus 74 percent; surgery—39 percent versus 60 percent; obstetrics/gynecology—50 percent versus 74 percent. Since the precentages are the result of personal value judgments, the absolute levels may not be significant, but the differences evident between the ratings of the teaching hospitals and the community hospitals appear highly significant.[5]

2. As a prelude to a medical audit, a very careful evaluation was made of all major female pelvic surgery cases done in a community hospital. Of the total operations performed that resulted in castration or sterilization during a 26-week period, only 30 percent of the operations were judged to be justified. This compared to a justification rate of 76 percent in two teaching hospitals.[6]

3. In a study of the quality of hospital care received by Teamster Union families in the New York City area, expert clinicians reviewed the medical records of a random sample of 430 patients admitted to 98 different hospitals during May 1962. In the opinion of the reviewing surveyors, only 57 percent of the admissions considered received "opti-

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[5] Leonard Rosenfeld, "Quality of Medical Care in Hospitals," *American Journal of Public Health,* July 1957. The author indicated evidence of substantial bias in one surgery consultant's ratings in hospital C. These ratings were omitted from the tabulations shown.

[6] Paul Lembcke, "Medical Auditing by Scientific Methods," *Journal of the American Medical Association,* Oct. 13, 1956.

mal" medical care. The variations by type of hospital and by specialty were substantial: Eighty-six percent of admissions to voluntary hospitals affiliated with medical schools were considered to have received "optimal" medical care, whereas only 47 percent of the admissions to proprietary hospitals were considered to have received "optimal" care. Eighty percent of obstetrics/gynecology cases were judged to have received "optimal" care, compared to only 31 percent of general medicine cases.[7]

The results of the studies presented here are typical of all such studies. No objective survey of hospital care has found such care to uniformly conform to the standards of best medical practice. Deviations from best practice appear to be significant and widespread.

Implications for Health Manpower of the Cited Problems and Deficiences

The problems and deficiencies in hospital care that have been cited directly bear on "the requirements for, and the availability of, health manpower and the effective allocation and utilization of such manpower." [8] First of all, the increasing demands for new and existing hospital services will place further strain on the already short supply of skilled personnel. Although the introduction of new equipment and facility designs could alleviate this strain by increasing the productivity of hospital personnel, modernization and innovation is hampered by the shortage of capital funds.

On the other side of the coin are the existing deficiencies in hospital care, all of which appear to result in substantial waste of health manpower: (1) Since personnel costs represent over 60 percent of total hospital costs, the wide variation found in total costs primarily reflects variations in manpower usage. (2) Unnecessary hospitalization inflates the need for health manpower. (3) Poor hospital care increases demands on the supply of personnel by prolonging illness, causing complications, and by causing avoidable disabilities that require further medical treatment.

The following sections of this report review existing efforts and make new recommendations aimed at overcoming the problems and reducing the deficiencies that currently exist in hospital care.

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[7] M. A. Morehead et al, *A Study of the Quality of Hospital Care Secured by a Sample of Teamster Family Members in New York City,* Columbia University School of Public Health and Administrative Medicine, New York City, 1964.

[8] Executive Order 11279 that established the National Advisory Commission on Health Manpower.

Current Efforts To Improve Hospital Care

This section discusses a variety of Federal, state, and voluntary programs aimed at overcoming the problems and deficiences in the hospital care field.

Increasing the Supply of Health Manpower

The Health Professions Assistance Act of 1963, together with the amendments of 1965, is a major Federal program aimed at increasing the supply of health professionals, especially physicians. Through a variety of mechanisms, it will provide money to assist in the construction and operation of facilities for the training of health professionals. It will also provide some financial assistance to students during their period of training.

The act envisioned a 50-percent increase in the number of medical school graduates by the late 1970's. Initiative by individual medical schools may well result in reaching this goal considerably sooner. As the efforts to increase the output of medical schools bear fruit, the supply of interns and residents will correspondingly increase. The numbers of interns and residents seem likely to increase more rapidly than the number of hospital patients. However, there is much concern that the foreign medical graduates who now fill over a third of the intern-resident staff positions are poorly prepared to accept these responsibilities and are badly needed in their own countries. The number of such graduates may decrease. Also, it is probable that more and more hospitals will want interns and residents, as they provide a relatively inexpensive means of upgrading medical service. Therefore, demand for such trainees will very likely continue to exceed supply, particularly if their salary costs remain far below the cost of obtaining equivalent services from nontrainee physicians.

The Nurses Training Act of 1964 and parts of the Allied Health Professions Act, the Vocational Education Act, and the Manpower Development Training Act, are directed toward increasing the Nation's capacity to train nurses. The major problem in nursing, however, does not appear to be the lack of educational capacity but rather the relative unattractiveness of nursing as a career today. This is reflected in the large number of trained nurses (perhaps more than 500,000) who are not now engaged in nursing, in the vacancies that exist in many diploma schools of nursing, and in the high-attrition rate among nurses within the first few years after graduation.

There is little doubt that low salary levels have been a major factor explaining the difficulty in recruiting and keeping nurses. In the past, nursing salaries have lagged far behind those available to women in secretarial and other positions requiring far less training. Recently, however, nursing salaries have risen rapidly (increases of 25 percent were not uncommon during 1966). As a result of these increases, it seems likely that some of the difficulties experienced in obtaining qualified nurses will disappear. It is the belief of this Panel that hospitals, in raising the salary levels for nurses, are taking the most effective possible step to alleviate the nursing shortage and that they should be supported in this effort by insurance organizations and by all levels of government.

Financing of Hospital Construction and Modernization

The need for Federal support of hospital construction in our nation was recognized following World War II with passage of the Hill-Burton legislation. Through the intervening years, the Hill-Burton Act and the Hill-Harris amendments of 1964 have provided a substantial stimulus for hospital construction in the United States. In any one year, however, the Hill-Burton Federal share of the total hospital construction dollar has been less than 15 percent. The remainder of the money was provided by local and state governments, community resources, and in certain parts of the country, by conventional lending institutions. Most of the Hill-Burton assisted construction was in rural areas of the Nation, and until the Hill-Harris amendments of 1964, did not include provision for modernization. Even now, modernization funds are small when compared to need.

Funds from all levels of government are currently financing only one-third of medical facilities construction, and the prospects are not high for new Federal loan or grant programs that would significantly alleviate the shortage of capital funds. A Public Health Service survey, which inspected the physical condition of individual hospitals, resulted in an estimate that $10 billion would be required to modernize and replace obsolete hospital facilities throughout the Nation. On the basis of this estimate a 10-year, $1 billion per year hospital modernization program was submitted to Congress in 1966 by the Department of Health, Education, and Welfare, but it was not approved and has not yet been resubmitted.

Currently, hospitals finance about one-third of hospital construction out of retained income and commercial borrowing. Under the current policies of Blue Cross and the Federal Government, the possibilities for increasing the amounts of funds obtained in this manner appear limited.

The trend is increasingly toward payment only of incurred costs, providing little or no margin of assurance to commercial lenders. Furthermore, there is currently discussion within Congress of changing the Medicare and Medicaid reimbursement formulas so that all payments for depreciation go into a fund managed by a planning agency of the state. Although this would not reduce the funds paid by the Federal Government, it would undoubtedly reduce the borrowing ability of individual hospitals.

In short, there are no existing programs and little certainty of any new programs that will substantially increase the supply of capital funds available to meet the needs of the hospital sector.

Improving Integration of Medical Care Facilities

The most significant recent development in the effort to achieve better integration and to avoid needless duplication of medical care facilities is the emergence of voluntary areawide planning councils. Since 1962, about $5 million of Federal funds and $8 million of local money has been spent to support areawide planning. During this period of time there has been a remarkable expansion in the number of planning councils. At the end of 1966 over 50 percent of the metropolitan areas with populations of 250,000 or more had established planning councils. In metropolitan areas of 1 million or more population, all except one had established formal planning organizations.

In most cases, disapproval of a project by a planning agency cannot prevent its implementation, although it may make it more difficult for the institution to obtain funds from philanthropists or commercial lenders. Only in New York State is the approval of the planning agency a prerequisite for implementation.

The voluntary planning movement is young and its role in improving health care is still evolving. Initially, most planning councils were primarily concerned with halting unnecessary construction and discouraging small facilities in metropolitan areas. Today, the emphasis of most planning councils has shifted more toward acting as a locus for community planning to improve health services and as an agency for the collection, analysis, and distribution of information relating to the supply of and need for medical care facilities in the locality. Although thus far the work of the planning organizations has been uneven, increasing sophistication is developing.

Voluntary planning councils can provide information that was not previously available and furnish a forum for the interchange of ideas and plans among cooperating institutions. By these means, they can greatly assist in constructively channeling the sincere desires of many institutions to improve the scope and quality of health services available to their populations. The planning councils depend upon good will and persuasion for success. Most of them do not have legal authority to make their decisions binding, and there is no consensus that such authority would be desirable. The activities of planning councils are generally not directed at obtaining compliance with minimum standards but rather in assisting institutions whose aspirations lie far above enforceable minimums of performance. Although legal authority could insure minimum compliance, it might also result in loss of support from voluntary agencies and professions that would resent and circumvent coercion. The losses in such an event might well outweigh the gains.[9]

The Hill-Burton program envisioned a significant role for state planning agencies in shaping the growth of hospital facilities. For a number of reasons, the influence of Hill-Burton planning agencies was limited. Currently, the Federal Government is making a new effort to increase the stature of State planning agencies. Under Public Law 749, Federal funds are being disbursed to aid States in formulating overall health plans, and it is envisioned that by 1970 all Federal categorical funds will be given to the States to be disbursed according to the plans they have developed. The relationship between voluntary planning activities and the new statewide health planning agencies being created is yet to be resolved. Further, the planning relationships between Public Law 89–749 and the Regional Medical Programs (Heart, Cancer, and Stroke legislation) remains to be defined.

Improving Management in Hospitals

During the past few years, there has been rapidly increasing participation in voluntary programs directed toward the improvement of internal operations of health facilities. Modern management techniques, including industrial engineering and other management sciences, are being applied with increasing frequency. The Management Review Program of the American Hospital Association and also its Hospital Administrative Services Program are beginning to provide data that allow individual administrators to compare their operations with others in the field. The Commission on Administrative Services for Hospitals in Southern California is an example of a hospital-supported organization that is applying industrial engineering techniques to the hospital field.

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[9] George Bugbee, *The Areawide Health Facilities Planning Movement—Dimensions, Purposes and Values.* Paper presented at the Institute for the Staff of Areawide Hospital Planning Agencies, Center for Continuing Education, University of Chicago, Dec. 13, 1966. This line of reasoning, as well as much of the other information on areawide planning, comes from Bugbee's paper.

Modern data processing techniques are also being used to assist hospitals in improving the standards of medical practice. The Commission on Professional and Hospital Activities collects, processes, and returns data on medical activities to member hospitals. The reports produced by this organization can greatly simplify the job of medical review committees.

As a result of Medicare requirements, most hospitals now have a utilization review committee, whose task is to review cases to determine whether hospital admission, length of stay, and use of services were medically appropriate. The Commission on Professional and Hospital Activities also provides reports that can assist these committees.

A major shortcoming of all of these programs is that success depends entirely upon the initiative of individual hospitals, and the programs contained no rewards or penalties to encourage such initiative. The programs assist those hospitals already strongly motivated to do a better job, but they have little effect in hospitals where the management and medical staff are poorly motivated. Existing programs offer little promise of raising the efficiency and standards of practice in such "problem" hospitals.

Recommendations

The recommendations of this panel fall naturally into three sections. Section I contains major recommendations directed at reducing the extent of deficiencies in hospital care and, at the same time, alleviating the shortage of capital financing. Section II relates these recommendations to current and proposed programs in the hospital field. Section III contains recommendations less general in their implications than the previous ones but that deal with problems whose solution is important to the hospital care field.

Section I. Major Recommendations

A. Third-Party Payments to Hospitals.

1. Third-party payments should contain rewards for efficiency, and ultimately, they should conform to the basic principle of equal payment for equal service to all hospitals in a locality, rather than payment to each hospital of its cost of providing service.

2. Third-party payments should reflect the standards of care provided by individual hospitals and should be structured to provide incentives to hospitals to raise their standards of care.

3. Net income and depreciation generated from operations, together with loans obtained from commercial sources, should constitute the primary source of capital financing for hospitals; therefore, on the average, third-party payments should exceed costs sufficiently to allow the better hospitals to obtain adequate financing to expand and modernize their services.

4. The Medicare and Medicaid payment formulas should incorporate the three principles stated above, and their adoption by all insurance organizations should be an objective of Federal and State policy.

Discussion.—We believe that the current methods of reimbursing hospitals have two major defects: (1) They make no distinction as to the quality or the efficiency of hospital operations; (2) they do not allow the hospital sector to obtain sufficient funds to meet its needs for expansion and modernization.

Payment to hospitals for services on the basis of either cost or charges does not provide any incentives for hospitals to increase their quality and productivity, nor does it provide any penalty to those hospitals which provide relatively poor care at relatively high cost. Inferior hospitals are as able to survive and prosper as the best.

The reimbursement formulas for Medicare, Medicaid, and most Blue Cross payments do not reimburse hospitals at a level that would allow them to generate substantial net income for modernization and expansion. Inability to expand and modernize affects the quality of care that an institution provides. It also discourages investments that would reduce costs and conserve on scarce manpower. In combination with a payment system that rewarded excellence and penalized inferiority, increasing the flow of capital funds into the hospital sector would yield large benefits. Hospital operations are so labor intensive that small savings in personnel will compensate for large invesments in equipment and plant. A reduction in operating expenses of 15 percent would more than compensate over the long run for a doubling of capital investment.

We have no ultimate answer on how best to improve hospital payments. We do believe, however, that immediate steps should be taken to introduce improved methods of payment on a large-scale, experimental basis. No amount of research and paperwork evaluation will provide the necessary information to design an optimum method. Improved, workable payment systems can only be developed through actual experience. Some experiments may not be entirely successful, but if reasonable prudence is exercised, the benefits from the experiments should outweigh the dangers.

A further point that needs to be emphasized is that although new payment methods may not be perfect, neither are the present ones. New methods should be evaluated in comparison with existing ones, not in comparison to some theoretical ideal. Present methods of payment have sufficient deficiencies so that great improvement is possible without attainment of perfection.

The fundamental prerequisite for introducing beneficial incentives into hospitals is systematic evaluation of the standards of care. When payments provide incentives for efficiency, the level of net income will depend upon the hospital's ability to control costs. If a hospital lowers its cost, it receives more net income. The danger that must be guarded against is that costs may be controlled by reducing quality of care or community service instead of increasing efficiency. Thus, an essential part of the payment system must be sufficient reward for increased quality and community service to make it unprofitable to a hospital to cut corners to achieve increased efficiency.

The medical review groups discussed under the next recommendation can serve as the core of the system for evaluating the standards of care. They cannot, however, merely decide whether a hospital's standards of care are satisfactory or unsatisfactory, since the "satisfactory" category would necessarily be so broad as to allow unacceptable deterioration of service without penalty. To provide sufficient safeguard against quality loss, it will probably be necessary to have three or four categories of satisfactory care. Initially, evaluations must rely heavily on expert judgment; and ratings that contain an element of judgment, even expert judgment, are always susceptible to criticism—but so also is the present absence of any systematic evaluation of care. Although difficult, a satisfactory evaluation system combining objective standards and expert judgment can be developed. The more weight that can be given to objective standards, the better, and vigorous efforts should be made to develop improved methods for objective evaluation.

As the standards of care in a hospital improve, the level of payment should rise by more than enough to compensate for the reasonable cost of improvement. If the payment system is structured in this manner, it can provide incentives not only for increased efficiency but also for increased quality.

An ultimate goal to strive for in the payment for hospital services is the payment of equal amounts to all hospitals in a locality for an equal quantity and quality of service. If this goal were attained, hospitals providing equal service at a lower cost would have a larger net income, and high-cost hospitals, a smaller net income. Because of the differential flow of funds among hospitals, over the long run, the most efficient and best would prosper and expand, while the poorest and least desirable would become a diminishing portion of the total hospital sector.

We recommend that payments that include incentives for quality and efficiency exceed average costs sufficiently so that the net income generated in the better hospitals will make a substantial contribution to meeting their needs for expansion and upgrading of services. It is to be emphasized that although the payments will exceed the average costs of hospital services, there will be a considerable and desirable variation among hospitals. The more successful hospitals (in terms of quality and cost) will receive a larger net income, and those providing poor care at high cost will receive a smaller and possibly negative net income.

The amount by which payments should exceed average cost is a matter which will require extensive study. In part, the answer should depend upon how closely the payments meet the criterion of equal payment for equal service. If they come reasonably close to this goal, the margin of payments over average cost should be large enough to provide the basis for meeting the normal capital needs of the hospital sector. This would imply a margin sufficiently large so that net income, commercial borrowing made possible by the anticipated future net income, and depreciation funds are adequate for the better hospitals to expand to meet much of the growth in demand for services. Even assuming improved efficiency and control over utilization, given the magnitude of the anticipated increase in the demands for hospital care, payments would probably need to exceed average cost by 8–12 percent. Although this may seem like a large amount, it is less than the rise in 1966 alone of hospital daily charges.

Suggested approaches—We present below several possible approaches to improving hospital payments. None of the approaches is meant to be definitive. They are intended to illustrate the range of opportunities for, as well as the obstacles to, instituting new methods of hospital payment.

(1) One possible payment method that would reward hospitals for higher standards of care and provide incentives for efficiency is as follows: Local groups of the evaluation system would have the responsibility of placing local hospitals in a limited number of categories. The basis for categorizing the hospitals would be the standards of care and community

service provided by the institutions. Participation in the evaluation system would be voluntary, but hospitals not participating would automatically be placed in the lowest category.

Payments to hospitals would be on the basis of audited costs, but would incorporate a variable incentive payment (VIP). The VIP would be a percentage figure and its size would depend upon the categorization of the hospital on the basis of its standard of care. In the category for the lowest standard of care, the VIP might be set equal to zero, and in the highest category might be as high as 15 percent.

Payments to an individual hospital would be based on last year's cost, its *VIP*, and the average increase in per diem (or per case cost) during the current year in an appropriate group of hospitals. In symbols, the payment would equal $C(1+VIP+R)$, where C is the hospital's cost last year and R is this year's average rise in cost in the group of hospitals. The more rapid the rise in cost within an individual hospital, relative to the rise in costs within the comparison group of hospitals, the smaller will be its net income. For example, if a hospital's *VIP* is 10 percent and its increase in cost just equaled the average, it would receive payments equal to cost plus 10 percent. If its cost were to rise by more than 10 percentage points above the average, its payments would be less than its cost.

This method of calculating the magnitude of payments has the effect of accepting the level of costs in each individual institution in the first year, and then rewarding each hospital proportionately to its relative success in holding down future rises in costs. Although the standards of care are assured by the review groups, it would also be important to guard against illusory increases in efficiency that arose from a shift in case mix towards easier cases. Still, the approach has the strength of simplicity of implementation together with the creation of strong incentives for reducing costs and raising standards of care. Its major deficiency is the favored position of hospitals that have unjustifiably high costs at the time the incentive payments begin (since such hospitals have more room to lower cost than the already efficient ones). Coincidentally with implementing an incentive payment plan of this nature, work should be begun to improve the basis for calculating the *VIP*.

(2) Another approach to calculating the payment level is as follows: A point rating system would be developed to classify hospitals into groups rendering equivalent ranges of services. The basic payment within each group would then be set equal to the average cost of care (per day or per case) within its group; to this basic payment would be added a *VIP* that would vary with the individual hospital's stand-

ard of care as determined by the medical review groups. Hospitals providing better care would receive a higher percentage *VIP*, as in the previous proposal. This approach would result in paying the same amount to all hospitals providing the same standards of care and equal or equivalent scope of services.

The point rating system could be determined at a national level, with some flexibility allowed to local groups in applying it. The points would need to be related to the cost of providing services, so that hospitals could not move to an unrealistically high group by adding a clever mix of minor services. The point rating system would need to be sufficiently sophisticated to be acceptable to third-party payors, but not so complicated as to be unworkable. There would also need to be local advisory groups acting as courts of appeal for the obvious problems that would arise.

The assumption that underlies this approach is that the range of services provided by an institution is one of the most important determinants of cost, so that hospitals in a locality offering equivalent services with the same standards should have the same cost. The problem of case mix variation would still remain, but perhaps this could be handled on an adjustment basis. The point rating system clearly will go a long way towards placing hospitals into truly comparable groups. The system may also ease the problems of arriving at equitable determinations of the standards of care, since it may prove to be acceptable to make separate determinations within each point class. The point rating approach has a number of attractive features. Whether it does provide for truly equitable payments to hospitals cannot be determined without further exploration. The approach appears promising enough, however, to deserve this additional exploration.

(3) Still another approach would be to accept the criteria of equal payment for equal service and to provide incentive payments only for those services where there was reasonable assurance that this criteria could be met. This would involve a slow and piecemeal shifting from the present cost-based reimbursement to incentive payments. Initially, a small number of well-defined services or treatments would be chosen; for example, certain laboratory or radiology procedures or the treatment of specific orthopedic or surgical cases. The hospital would still be categorized according to the standards of care, but the evaluation would apply only to the services covered by the incentive payments. Careful studies would be made to determine the reasonable costs of providing the chosen

services. All hospitals would receive the reasonable cost plus a *VIP* that varied with the standard of care within the individual hospital.

As assurance was gained that the methodology was working well for the chosen services, new services would be brought under the incentive payment plan. Those services not covered by this plan would continue to be reimbursed on the basis of cost. It will almost certainly be impossible to apply this approach to all types of patients and hospital services, but if a sizeable portion of them can be included, it should have a beneficial effect on all operations in the hospital.

The advantage of this last approach is that the incentive payments are applied only when there is confidence that they appropriately reward hospitals on the basis of actual performance. Its disadvantages are the difficulty of developing the necessary methodology and the slow rate of implementation.

The approaches discussed above are meant only to be illustrative. These and other approaches should be analyzed, experimented with, and evaluated. It is neither possible nor important to settle on the details of a payment system at this time; what is important is to accept the basic principles of incentives for efficiency and high standards of care and to begin to incorporate them in large-scale experiments.

B. Evaluation of the Standards of Hospital Care.

1. The Federal Government should finance the development of but not operate a nationwide system for the evaluation of the standards of hospital care.

2. An experimental and flexible approach should be used in the development of the evaluation system, but the major role should be assigned to local, community groups. Agencies of state governments should supervise the activities of the local groups and should provide the channel of communication to Federal agencies concerned with the evaluation system.

3. The evaluation system for the standards of hospital care should provide the mechanism discussed in Recommendation A to adjust hospital reimbursement payments to reflect the standards of care in individual hospitals.

Discussion.—The recommendations for the development of a system for the evaluation of standards of hospital care reflects the belief that the absence of such a system is at the heart of most of the major deficiencies in hospital care today. Without systematic evaluation, medical staffs cannot be held accountable for the quality of practice, payments to hospitals cannot properly reward efficiency and excellence, nor can unnecessary hospitalization be detected and minimized.

As things now stand, medical staffs of hospitals are accountable only to themselves. In many hospitals, there is little review of the medical practice of individual physicians. Maintenance of high-quality medical practice is the responsibility of the medical leadership of individual hospitals. Depending upon the caliber of that leadership, standards of practice may be excellent or they may be very inadequate. The hospital trustee does not generally have the knowledge to question the standards of the medical staff, and if the hospital administrator does have such knowledge, he generally lacks the authority to make effective use of it. As a result, there is a wide variation among hospitals in the quality of care provided.

A systematic means of evaluating the standards of care in hospitals is also essential to realize the full benefits that meaningful competition among hospitals would produce. In most markets, competition insures that the efficient will prosper and the inefficient will eventually go out of business. But, the consumer's ability to make intelligent choices among goods and services of various price and quality is crucial to the effective operation of a free, competitive market. Only then does the price mechanism act to reward excellence and penalize inferiority. A firm that produced the equivalent of an economy sedan and tried to sell it for more than the price of a luxury automobile would not remain in business very long. People would be well able to judge which car represented the better value. But, in the hospital field, they are unable to make such evaluations. The result is that high- and low-cost producers of equivalent hospital care can and do coexist within the same community.

As individuals, the consuming public will never be able to make intelligent choices among variously priced hospital care. Third-party payers, however, do have the potential for making such choices. To do this, though, they must know to what extent differences in price reflect differences in the standard of care provided. A system for the collection and evaluation of information on the standards of care in hospitals is, thus, a prerequisite for payments that are closely related to the value of the services purchases (see Recommendation A).

Evaluation of the standards of practice will also automatically detect many cases of unnecessary hospitalization. If such cases can be routinely detected, a number of avenues for reducing their incidence are possible (also see Recommendation C).

Although the value of a system for evaluating the standards of hospital care is clear, the best design for the system and the best method of achieving it appear much less certain. Research and experimentation will be essential in the development of the system. At this time, it is impossible to specify what final form the system should take. We believe, however, that certain principles should be considered in formulating a development plan:

1. Ultimate responsibility for raising the standards of care should lie within the individual hospitals. Groups or agencies outside of the hospital should not have authority to review the practice of individual physicians. This should be a function conducted by the staff of the physician's hospital. Thus, records and information provided to review bodies should not identify (except by code) the work of individual physicians.

2. The primary review bodies should be located within the community, and their membership should be drawn largely from the medical profession within the area. It is probably appropriate to include in the membership representatives of local government, local hospital associations, and representatives of the relevant state agencies. To be effective, the local groups will require a full-time, salaried staff.

3. Each state should have an agency to assist and supervise the activities of the local groups and to provide a channel of communication to Federal agencies concerned with the evaluation system.

4. The primary role of the Federal Government in the evaluation system should be to provide financial support and to assist in the development of techniques for collecting and processing of information for the review bodies.

5. For the evaluation system to be effective in terms of improving the standards of care, information generated by the system must be reflected in the level of payments to hospitals. One manner in which this could be done is discussed in Recommendation A.

The panel realizes that the proposal for a nationwide system for evaluation is a revolutionary one. We harbor no illusions about the difficulty of developing a workable and acceptable system. Neither do we expect that the development process will be a short one. But, we do believe that even before it is perfected, such a system will yield valuable benefits, and therefore, it is important to begin developing such a system immediately.

C. Prepaid Comprehensive Health Care.

1. It should be Federal and State policy to encourage the growth of institutions that provide comprehensive (hospital and physician) health care on a prepaid as well as on a fee-for-service basis.

2. As part of this policy, Medicare and Medicaid payments to organizations that provide prepaid, comprehensive medical care and that meet quality standards should permit these organizations to share part of any savings they achieve by superior control over hospital utilization.

3. The Federal Government should sponsor experimental programs aimed at achieving the benefits of comprehensive care outside of prepaid group practice plans.

Discussion.—Previous recommendations provide incentives for those who manage hospitals to improve productivity and the quality of care in their institutions. They do not directly provide rewards for physicians who conserve on scarce hospital resources. This defect does not exist in prepaid comprehensive health care plans. Because the physicians in such plans receive fixed payments from members irrespective of the quantity of medical care provided, strong incentives exist to avoid unnecessary medical care. Every Federal report since the Hoover Commission studies of the 1940's has recommended that the Nation move toward the provision of comprehensive medical care. The study of the Kaiser Foundation Health Plan sponsored by this Commission indicated the potential for sizeable savings from providing more care on a prepaid basis. The other studies cited in a previous section also found sizeable economies under such plans. It is our belief that the majority of savings achieved by such plans appears to derive from an incentive structure that reduces hospital utilization rather than from the economies of large-scale group practice.

For these reasons it appears possible that much of the economy achieved by the existing plans could equally be achieved by small groups who agree to provide care on a prepaid basis. Such prepaid plan must meet, in equal measure, the quality standards set forth for hospital and physician care on the fee-for-service basis. To encourage the provision of care on this basis, we recommend that Medicare and Medicaid base their payments to organizations providing prepaid care on their costs of covering similar people who receive fee-for-service care. If the economies are as large as many studies indicate, this would mean a substantial raise in payments to such organizations, and this would create considerable incentives for physicians to accept the responsibility for care on a prepaid basis. The formula for calculating payments for prepaid care should, of course, be determined in a fashion that allows the Government to share in any savings that accrue from the spread of prepayment.

We also believe the Federal Government should sponsor experimentation aimed at replicating the advantages of prepaid group practice plans in other insurance plans, such as Blue Cross-Blue Shield. The design and implementation of such experiments would be difficult, but they should be possible with the aid of the Blue Cross Association and the cooperation of the management of a major Blue Cross-Blue Shield plan. The Fedral Government will need to agree to underwrite the programs and cover possible losses.

In addition, other experiments should be attempted. Appropriate financing could provide for the development of a true echeloning system for the delivery of health care within a limited geographical area. Proper planning could insure the interrelationship of Federal, state and community institutions along with groups of physicians in the provision of comprehensive medical care. An interrelation of the authority provided under Medicare, Heart, Cancer, Stroke legislation and Public Law 89–749 could result in interesting experiments on comprehensive medical care. The panel realizes the difficulty of initiating such programs but feels that they would be of great value.

Section II. Related Recommendations on Current or Proposed Programs

A. Planning.

1. Development of local, State, and regional planning associations should be encouraged, and the Federal Government should continue to provide support for voluntary areawide planning councils.

2. Widespread use of franchising power by planning agencies should be deferred while current experiments with such authority are watched and evaluated.

3. Federal support for health planning agencies should be structured to encourage them to integrate their activities with overall community planning efforts.

Discussion.—Health care resources are manpower, organizations, and physical facilities. The problem of improving health care is one of improving the allocation of health care resources to meet known or foreseeable demands for care. Historically, the configuration of organizations and facilities has not been controlled by the needs of the total population to be served, but rather by those of special interest groups. The acceptable numbers of health organizations and facilities have been informally selected on political, religious ethnic, philanthropic, or profitmaking bases.

The growth of planning agencies represents an attempt to provide a more rational means of deciding upon the allocation of health care resources. Planning associations have been developed at the regional, state, and local levels. It is important to distinguish among these levels in discussing the potential contribution of planning agencies.

At the local level, planning councils make important contributions by acting as sources of information and by assisting cooperating institutions to more effectively meet the health care needs of the population. Although it is not now common, they also could and should provide valuable inputs to agencies concerned with planning for meeting the overall future needs of the community. These services, if effectively provided, more than justify the cost of operating the local agencies.

Local planning councils do not generally have legal authority to apply sanctions or to prevent projects of which they disapprove. They are generally concerned with encouraging performance far above enforceable minimums, and such legal authority is probably not desirable. On the other hand, State planning agencies may be concerned with enforcing minimum standards, as well as formulating plans to guide the disbursement of State and Federal funds. In such agencies, some legal authority is clearly required, but the panel is skeptical of the value of giving these agencies the authority and responsibility to approve individual hospital projects.

The skepticism about the value of "franchising" is based on both practical and empirical grounds:

First, it is difficult to believe that the public would accept a law which prevented, for example, a religious group from building a new wing on their hospital with their own funds.

Second, reductions in capital spending achieved by such planning agencies would not represent a major economy in the provision of hospital care. Capital costs are only a minor fraction of the total costs of hospital care. Depreciation plus interest on capital accounts for only 10–15 percent of the total costs of hospital operation; thus reducing capital costs by 10 percent would reduce by less than 2 percent the total operating costs of the hospital.

Finally, if planning agencies are given franchising or other control authority, the quality and extent of hospital services available to the community becomes entirely dependent upon the ability and integrity of these associations.

Thus, although we believe that planning agencies have a useful role to play, we believe that major reliance for improving the efficiency and quality of hospital care should be placed on altering the incentive structure as discussed in Section I.

Regional planning efforts, such as those envisioned under the Regional Medical Program, are still in an early formative stage. For some time to come, it seems likely that their major functions will be in coordinating plans for the disbursement of Federal funds for regional programs and to provide a means for state agencies to exchange information.

B. Capital Financing.

1. The principal channel for disbursing Federal funds to meet hospital capital needs should be the variable incentive payment mechanism described in Recommendation A of Section I.

2. Federal grants and loans should be provided to hospitals only to meet extraordinary needs (such as the needs of some large urban centers to completely overhaul their hospital facilities).

3. Before initiating a major program to modernize the hospital system, the Federal Government should undertake a careful study to determine the criteria to use in deciding whether it is more economical to build new facilities or to modernize old ones.

4. Current local and state sources of capital funds for hospitals should be preserved.

Discussion.—Because the incentive payment system described previously will provide incentives for efficiency as well as funds for expansion and modernization, the Federal Government should make it the primary means of dispensing capital funds. The net income generated in this system, together with the commercial borrowing that it will make possible, should suffice to meet ordinary needs for expansion and modernization. In some major urban areas and in the university teaching hospitals the needs for modernization are probably so great that commercial borrowing made possible by the change in the payment system will still not be sufficient. The Public Health Service has estimated that the modernization needs of the Nation's hospitals total $10 billion, and it will probably be necessary to finance some of this through Federal and State grants and loans.

Before undertaking a major modernization program, however, careful consideration should be given to the merits of replacement versus modernization. When making any decision with respect to hospital construction, the objective should be to minimize long-run total costs of the hospital operation. Because capital costs are small in relation to operating costs, the panel seriously questions the desirability in most instances of modernization as compared to the alternative of tearing down old facilities and replacing them with new and different ones. The modernization bill previously proposed by the administration was based on the estimate that the average costs of modernizing and of replacing beds would be the same. Even in cases where the costs of replacement are much higher than the costs of modernization, it seems likely that resulting operating economies will make the former alternative the better choice over the long run.

Local and state bond issues and philanthropy are currently important sources of funds for most hospitals. The proposed payment system will not eliminate the need for these funds. Hospitals will still need to borrow to meet capital needs, and State loans and local bond issues may often provide the best means of obtaining such funds. The importance of philanthropic funds has been declining over time, and the proposed payment mechanism will probobly diminish its importance even further. But, it is important to note that the role of philanthropy in terms of personal service need not and should not diminish. The use of volunteers in hospitals fulfills a real need for service and at the same time involves the community in the general support and understanding of its hospitals.

Section III. Other Recommendations

A. Extended Care and Nursing Home Care.

1. The medical value and economic merit of extended care service as an adjunct to hospital care should be closely examined before undertaking any major government program to encourage the construction of extended-care facilities.

2. A careful study should be made of the care of aged in hospitals and extended-care facilities to determine the extent to which higher cost facilities are being used unnecessarily, and to determine potential savings in resources from extending Medicare benefits to cover skilled nursing care.

Discussion.—The Medicare law provided for a new type of service—extended-care service. The approach was to increase post-hospital convalescent care by providing a benefit that would permit the movement of patients from the intensive medical- and nursing-care environment of the hospital to an extended-care facility.

The Nation has embarked on a new type of medical care without providing for evaluation of its effects of the patient, hospital, extended-care facility, or skilled nursing home. There are serious unanswered questions about the amount to which the use of extended-care facilities actually reduces the overall cost (including time until recovery is complete) of hospitalizable illness. First, because patients transferred to extended-care facilities are less ill than average hospital patients, they would cost less than the average if they remained in the acute hospital bed; thus subtracting the average per diem in an extended-care facility from the average per diem in a hospital is not an accurate measure of the resource savings attributable to the use of extended-care facilities. Second, because the hospital has more resources to bring to bear on the patient, it may be that recovery time is slowed by transferring the patient from the hospital to an extended-care facility. Thus, on medical as well as economic grounds, there are reasons for questioning the value of extended care as an adjunct to hospital care. It should be stressed that these are questions for which there are no answers at this time, and such answers should be made a prerequisite for any major Government program to encourage the construction of extended-care facilities.

Any analysis of the value of extended care should make a clear distinction between urban and rural situations. Occupancy rates are generally low in rural areas, and extended care could be provided in general hospital beds that would otherwise be empty. On the other hand, in certain metropolitan areas there are already shortages of acute hospital beds; thus construction of extended-care facilities would relieve this shortage.

One objective of covering extended care under Medicare was to eliminate the incentive for patients to remain in the hospital simply to obtain insurance coverage. In spite of this, the length of stay for Medicare patients in a sample of hospitals studied by the American Hospital Association steadily increased from about 11.2 to 13.2 days between the initiation of Medicare on July 1, 1966 and February, 1967. Although the time period is too short for definite conclusions, the increased length of stay for Medicare patients suggests that provision of extended care, which did not begin until 1967, may be important in reducing the extent of unnecessary hospitalization. There will remain, however, possible overuse of extended-care service, since Medicare provides for 100 days of such care but pays nothing for skilled nursing or custodial nursing care.

The extended-care benefit is intended only to provide for convalescence from acute conditions, not to provide long-term care; but there will be strong pressures to take advantage of the extended-care benefits for the full 100 days even when long-term nursing care is more appropriate. Extending benefits to cover long-term nursing care would add to the total costs of Medicare, but it would also result in some savings of resources by bringing about more appropriate use of the spectrum of facilities, ranging from hospitals to long-term care institutions. An overall evaluation of extended care should include a measure of the additional costs and the additional benefits that would result from extending Medicare benefits to include long-term nursing care.

Consideration should also be given to the requirement that extended care facilities must be staffed and equipped to do nursing and related care to every bed 24 hours a day, whether the particular patient occupying the bed needs it or not. As a result of this provision, extended-care facilities cannot staff appropriately for the provision of skilled nursing care in these beds. When there are not enough extended-care patients, the beds must either go empty or the occupants must be provided with care that is more expensive than necessary.

B. Design of Facilities for the Delivery of Health Care.

1. There should be Federally supported programs of research on planning methodology and the design of physical facilities for the delivery of health care. Emphasis should be placed upon research and development of hospital structures that are able to adapt to changes in medical science and hospital technology.

Discussion.—The content and cost of an activity is closely related to the physical facilities in which the activity is conducted. The more complex the activity, the more important it is that the design of the facility be functionally related to the activity. The delivery of health care, particularly hospital care, is an extremely complex task, yet little has been done to relate the design of facilities to the functions performed in them.

The hospital is a prime candidate for research to improve its functional design. Traditional patterns of hospital organization intertwine vertical and horizontal hierarchies of professional and administrative control. The interhierarchy communication patterns are poorly defined, and each hierarchy replicates some of the functions of others. It has been demonstrated, however, that good patient care can be provided in traditional settings despite their built-in obstacles and, with this empirical justification, both medicine and management are loathe to commit themselves to experimental new forms. Architects are regularly directed to reproduce old forms for fear that new ones may not work.

As a consequence, new hospitals use traditional designs that result in confused and redundant traffic volumes, peaks and valleys of activity, and wasteful duplication of effort. These defects consume labor, destroy amenities for patients and personnel, and probably affect the hospital's capability to handle an optimum flow of patients. They could be substantially eliminated by proper design of the facility.

The rapid change that may be expected in hospital technology and medical practice, in itself, creates a special problem for hospital design. Physical safety of occupants requires that buildings for health care be structurally secure, fire safe, and sanitary. Meeting these requirements results in buildings that remain usable (and continue to be used) long after technical and organizational changes have diminished their usefulness. Yet, it is clearly possible to design and build structures that permit internal rearrangement of spaces in response to changing operations. The British Ministry of Health and the U.S. Veterans Administration have devoted substantial effort to this problem for hospitals. The Ford Foundation has supported a major parallel effort towards flexible school building design.

It is entirely possible that changes in medical science and in the methods of delivering health care will sharply reduce the need for beds and increase the need for diagnostic and ambulatory care services. If that occurs, almost every hospital that exists today will face major problems of adjusting its physical plant to the new pattern of care. Adapting to changes in medical science and demands for care will be greatly simplified if new facilities begin to incorporate the flexibility that modern technology now makes possible.

In the last 20 years there have been great changes in the technology of communications, transportation, and medical care itself. Taking full advantage of these changes will require an interdisciplinary effort to rationalize the physical, logistic, professional, and papaprofessional components of the health care delivery system.

Individual institutions are not financially capable of supporting the development and testing of innovations of the type discussed here, and no one segment of the industry now has a large enough interest to warrant such financial support. It is, therefore, entirely appropriate for the Federal Government to sponsor such activity.

C. Research and Demonstration in the Delivery of Health Services.

1. A national program of research and demonstration in the delivery of health services is urgently needed and should be developed by the Federal Government.

2. The program should be patterned after the successful work of the various National Institutes of Health, combining intramural and extramural efforts, and include training of personnel and demonstration projects.

3. The proposed Center for Research on the Delivery of Health Services should be called an institute rather than a center, and be given

a status independent of any of the bureaus or departments of the Public Health Service.

Discussion.—Throughout this report the panel has referred repeatedly to the need for research, experimentation, and demonstration in various approaches to the delivery of health services.

The panel strongly feels that a well-funded, aggressive, directed research program, which takes into consideration the new technologies now available and the experience of certain parts of the civilian community, can provide substantial payoffs not only by improving the quality of care, but by limiting the increasing cost of inpatient medical care. In addition, legislation approved by the 89th Congress has offered new opportunities for research on the organization of delivery of health services.

It is important to mobilize and use the Nation's best resources for this effort and this suggests action similar to that proved so successful in the several National Institutes of Health. Both intramural and extramural programs are indicated, using the talents and facilities in the Nation's private hospitals, universities, and appropriate industries. Training programs are required to produce research workers, and substantial demonstration projects are needed to assure application of research results.

The program must have the emphasis of the new, not be just a retread and modest expansion of the old. The effort will be large and should not be engrafted on already overloaded bureaus and departments of the Public Health Service. New talents and new approaches are called for.

The new program should be an institute, not a center. In this way its comparability to the NIH will clearly be evident. It should be free of other responsibilities, be an attraction to research talent, coordinate closely (through councils and study sections made up of the Nation's experts) with hospitals and universities. It should be an independent unit in the Department of Health, Education, and Welfare.

D. Support for Operational Decisions in Health, Education, and Welfare.

1. The Secretary should have available a research capability to gather and analyze data to provide him with alternative courses of action and their probable consequences.

Discussion.—The research recommended earlier may, eventually, lead to major changes in the way health care is delivered. It may make it better quality, less costly, or more accessible. Or it may have few visible consequences.

The Secretary of HEW has to make, in the meantime, daily operational decisions regarding the health care which his Department buys or arranges for under Titles 18 and 19, Children's Bureau, Public Health Service, etc. To make such decisions, and to help him judge between alternative solutions and competing organization jurisdictions, the Secretary should have operational research capabilities independent of his constituent departments. The Office of Assistant Secretary for Program Coordination has performed such functions within its limited staff and resources. The panel foresees the need for a marked expansion of this sort of service to the Secretary.

Appendix

An Analysis of Patient Costs in Twelve Distinguished Hospitals

The cost per patient day has been widely used as a measure of the cost of hospitalization. In 1965, the national cost per patient day averaged $44.48, and the variation by hospital size category ranged between $36.76 and $48.93. The differences in costs among individual hospitals are often very large.

To explain these variations in the cost per patient day, arguments have been made that the lack of uniformity in services among hospitals, the varying scope of services offered to the patient, differences in staff-specialty mix, cost differences between accredited and nonaccredited facilities, and wide variations in salary expenses account for the differences. The implication is that if uniformity in these factors could be obtained, the remaining variations would be small.

The following analysis of cost per patient day was undertaken to provide insights into this issue. All hospitals selected are in the class of "distinguished" hospitals; all are recognized as providing unexcelled services, with the quality of staff considered almost equivalent.

Statistical information for the month of September 1966, was analyzed, and is summarized in tables 1 through 3. The total expenses per patient day are shown for four broad cost categories; general service-associated costs (administration, health and welfare, dietary laundry, housekeeping, and plant), patient-associated professional service costs (medical and surgery, pharmacy, laboratories, etc., except nursing), nursing costs and, finally, training associated costs (intern and resident service and nursing education). Outpatient clinic costs are considered separately.

Table 1 ranks the hospitals by cost per patient day. The average total cost per patient day is approximately $83 with the variation ranging from $54.10 to $111.53—a twofold factor. The range in the cost per outpatient varies between approximately $3 to $12.

In an attempt to remove the influence of variations in salary and fee expenses, cost-of-living consideration, etc., an average total wage was calculated for each hospital. The lowest average wage rate was applied to the total employee hours for each hospital to derive a revised total salaries and fees. To the revised total of salaries and fees, the other direct expenses were added to obtain a revised total expense. This figure was used to obtain a revised cost per patient day. Table 2 summarizes the results of this analysis, and the revised ranking is also shown. While the ranking of the hospitals changes, there is still a twofold variation in the cost per patient day.

An attempt was made to assess whether the variations of the costs per patient day could be attributed to the size of the hospital. Figure 1 shows that no relation can be discerned between cost per patient day and hospital size.

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In summary, while the analysis was limited to a small sample of hospitals, several conclusions are evident:

1. Hospitals generally rendering the same scope and quality of services have a large variation in costs per patient day.
2. For these hospitals, differences in salaries and fees do not explain the variations in costs per patient day.
3. Differences in the size of these hospitals do not explain the variation in costs per patient day.

Consequently, the variation in cost may be attributable to varying efficiencies of hospital planning, management, and plant.

TABLE 1.—*Ranking of hospitals by cost per patient day*

Ranking	Cost per patient day					Percent occupied	Cost per outpatient visit
	Total	General service	Patient associated	Nursing	Training associated		
1.........	$54.10	$18.94	$17.37	$16.38	$1.41	75.9	$4.00
2.........	64.40	19.06	26.47	17.19	1.68	78.2	NA
3.........	65.60	25.11	26.62	11.26	2.61	74.5	2.97
4.........	68.32	26.23	25.35	12.37	4.37	82.3	8.49
5.........	79.97	34.07	27.59	15.51	2.80	72.0	5.01
6.........	80.04	32.34	28.25	15.85	3.60	90.9	11.94
7.........	85.05	27.13	29.51	19.90	8.51	76.4	2.51
8.........	90.90	35.90	35.91	17.73	1.36	75.0	2.43
9.........	92.54	36.00	33.59	18.60	4.35	79.1	4.16
10........	94.43	35.13	35.60	19.55	4.15	76.8	3.85
11........	97.13	39.43	28.85	22.53	6.31	76.4	4.74
12........	111.53	33.91	52.87	18.85	5.90	85.7	3.35

TABLE 2.—*Hospital cost per patient day adjusted for salary and fee differences*

Unadjusted costs per patient day	Unadjusted ranking	Adjusted costs per patient day	Adjusted ranking
$54.10	1	$46.00	1
64.40	2	57.60	3
65.60	3	57.40	2
68.32	4	59.00	4
79.99	5	72.30	6
80.04	6	66.60	5
85.05	7	85.05	11
90.90	8	82.10	9
92.54	9	83.00	10
94.43	10	80.70	7
97.13	11	82.00	8
111.53	12	95.60	12

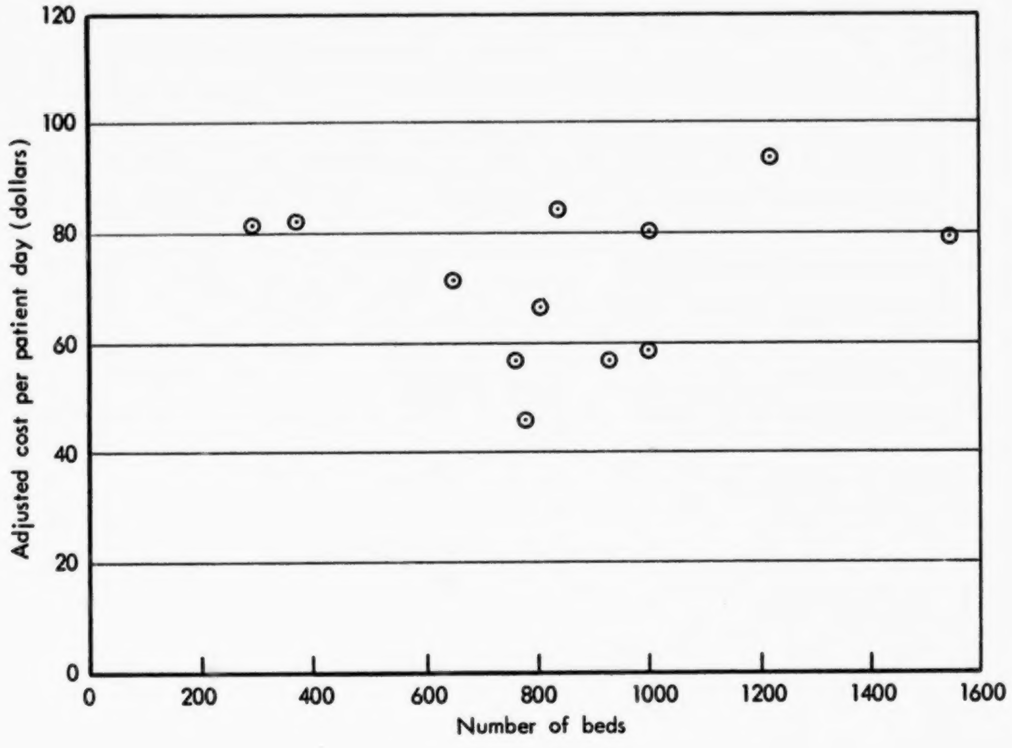

Fig. 1—Cost per patient day as a function of hospital size

Report of the Panel on the Impact of New Technologies

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The members of the Panel on the Impact of New Technologies wish to express their thanks to the numerous individuals and organizations without whose help this report could not have been written. We are especially grateful to those in the medical field who gave of their time in order that we might obtain their views and observe their facilities. We are also indebted to the members of the staff of the Commission whose knowledge and advice were invaluable.

Introduction and Background

In the midst of an era of spectacular advances in medicine, America is paradoxically faced with a mounting crisis in medical care. The crisis involves a manpower shortage problem as one of its important features, although its ultimate manifestation is rapidly increasing costs. A rising population, an increasing public demand for medical care, a proliferation of available techniques, and increased government support have combined to create unprecedented demands for health manpower.

The Panel on the Impact of New Technologies was asked by the National Advisory Commission on Health Manpower to suggest specific areas of technological innovations that could improve the efficiency and effectiveness of health manpower. Early in our studies, it became apparent that the problem is as much one of bringing existing technology into working support of physicians as it is one of developing new technology; it appeared that much of the technology that is needed already exists. The problem is to learn how to put it to work in that institution which we call simply the health care system. This view led us into collateral considerations, such as the lack of incentives for adaptations of new technology to medical needs, as well as the institutional impediments to such innovations. As scientists and engineers we did not feel wholly competent to judge those matters, but we have reached a firm conclusion that the problem of harnessing new technology is paced at least as much by nontechnical matters as it is by the institutions of science and technology. Many of us have participated in the lengthy process of injecting science into military and commercial fields and have a thoughtful respect for the uniquely helpful role that analytical studies can play in guiding such evolution. We have therefore included these matters in our recommendations, with the understanding that the Health Manpower Commission must pay special attention to those solutions which lie outside our principal area of competence.

As a starting point, the panel agreed that the basic role of technology in the health care field is one of support. This support can take the form of simplifying tasks or offloading existing functions from health care professionals. It will surely provide new and more excellent means for coping with unsolved problems. However, it may be helpful at this point to identify more specifically the ways in which these economies are likely to arise:

1. Reducing the cost (or manpower requirements) of a previously available service (e.g., automated blood analysis, disposable medical and surgical kits, automated hospital recordkeeping).
2. Broadening the distribution of expert medical care by means of advances in communication and transportation.
3. Providing better educational and rapid-reference aids to medical personnel and the public.

4. Providing a broader perspective from which health care leaders can make operating decisions through system analytical and economic simulation techniques.

5. Improving the effectiveness of existing health care services, such as central monitoring of critical physiological functions by nurses or enhanced diagnostic support for examining physicians.

6. Providing the capability for medical personnel to render services not previously available through the development of new devices and techniques.

It is certain that some applications of new technology will save health manpower. Other concepts will simply create demands for new services and more manpower. The inherent competition of these two influences must be recognized, and one needs to balance efficiency against effectiveness in considering programs. Nor do we have unbridled enthusiasm for new technology per se. Technology can be simply gadgeteering introduced for its own sake. A few irresponsible individuals may continue to promote fraudulent devices. Hence, we encourage those of the health care field to develop the ability to discriminate in such matters and to aid the public in such discrimination. The Defense Department developed this discretion late in its cycle of exploitive technology. If the Commission shares our vision of the enormous potential utility of science and engineering, the health manpower field has both an urgent requirement and a unique opportunity to put the horse before the cart.

What we have done in this preliminary screening is to try to learn enough about the health care system to identify what science and technology might contribute. Our first effort was to try to understand the significant elements of health care and medical services. For this purpose, the panel visited several representative hospitals and spoke with their administrators, and with selected doctors in various medical specialties, as well as physicians engaged in organized group practice. The panel explored the research, development, and marketing practices of manufacturers of medical instruments and supplies, and the policies and recommendations of certain professional groups whose interests impinged on the total health care system.

One of the impediments to us—and very probably to the system itself—is the lack of an adequate model of the health care system. Hopefully, such a model would relate resources to quality and availability of care. We do not suggest that this is an easy model to construct on a national scale. However, we believe that consumers, physicians, hospital administrators, and public officials alike must have some approximate agreement on a scale of values to guide their innovative efforts. More specifically, we feel that it is a necessity to develop methods for estimating the quality of medical care and its cost effectiveness if we are to judge the desirability of introducing specific elements of new technology into the health care system.

The scope of the U.S. medical field is indicated by its current annual expenditures of about $43 billion. The expenditures for basic research in this field are also considerable. For example, those of the National Institutes of Health alone are about $750 million, or about 1.8 percent of the total health expenditures. The total U.S. expenditures for basic research in the health field are thus greater—perhaps 2 percent. A comparison with other fields is favorable; for example, the total expenditures for basic research in all U.S. industries is only 0.2 percent of net sales. Even in high-technology industries, the basic research expenditures are lower than in the health field. The conclusion is clear—basic research is comparatively well funded in the medical field.

However, when the applications of basic research are considered, the picture is completely reversed. In the medical field, less than 1.8 percent is spent on applications (including applied research and development) compared to 4.2 percent for the U.S. total industry on the basis which was used above.

The Public Health Service appears to be in the process of reorganization in an attempt to solve some of the problems related to the introduction of advanced technology and scientific planning and management into medical care, but a clearly planned and organized program is not apparent. State and local agencies are also working on the problem of planning, but they are restricted by limitations of resources and geographic scope of action. A county hospital administrator, beset with personnel shortages and overcrowded facilities, cannot be expected to contemplate broadly the proper allocation of future resources.

The panel attempted to determine the reasons for the apparent relative lack of applications activity and found a variety of reasons why such work is not often undertaken—even with government funding. Applied research and (especially) development might appear to fall into the orbit of profit-seeking enterprises. Indeed, the drug industry, where 3.9 percent of sales are being invested in applied research and development, has subsidized and performed substantial amounts of precisely this type of activity.

The panel believes the application of research and development findings is also impeded by current legal attitudes concerning malpractice and/or damage suits. The effect may be to minimize errors of commission without compensating for the errors of omission such caution entails.

Even more disturbing to the panel was its finding that there is insufficient use of already developed technology related to the delivery of medical care, as is again made evident by comparison with the use of technology in other fields. It appears that our medical institutions have evolved in such a way that they lack those factors which, singly and in combination, have encouraged the effective use of existing technology in other fields; i.e., (1) strong competitive cost pressures and the incentive for cost reduction through introduction of technology; (2) informed consumer demand for a better or new product or service; and (3) large-scale government support or sponsorship of specific technologies.

Perhaps this is a harsh commentary, but the situation seems to be a natural result of historical evolution, i.e., the development of hospitals along philanthropic lines. Certainly, there has been no universal cost effectiveness yardstick for forcing abandonment of existing capabilities or traditions in favor of more effective ones. Furthermore, the fact that physicians are highly individualistic customers has presented the technical entrepreneur with a diverse market, which in turn has been more formidable to approach than a single type of customer. Another inhibition to such innovation is the serious consequences of misjudgment in an endeavor so directly influencing human life and survival.

It must be recognized that profits are the main incentive for inducing private industry to provide long-term benefits to the population. Added to the usual technical risks of private development is the important question of medical acceptance of new techniques or available but unused technology. Industry must balance this risk against the possibility of real gain in case of acceptance. Thus, exclusive licensing (or limited licensing to perhaps two manufacturers under appropriate restriction) or patents may be an important mechanism for stimulating technological progress and the efficient introduction of effective devices and procedures. While Federal contracts for health care development may be attractive to organizations that conduct research and development as a business enterprise, a similar contract to a manufacturing organization will not often be accepted as a reasonable investment for a company's scarce research and development resources.

There are other problems which have nothing to do with profit incentives or industrial focus. These relate to the professional regard in which physicians and scientists and engineers hold each other. We have found ample evidence of mutual skepticism, and are informed that this is strongly reflected in interdisciplinary groups established to undertake bioengineering problems. This has undoubtedly been aggravated by overzealous claims on the part of technologists and the manifest reluctance of physicians to change a working system for the sake of exploration. It also involves the basic differences in education. The two groups select and receive educational curricula which are different in their conceptual approach as well as their substance. There are overtones of professional and personal competition for "first class" status in a society which have only clouded the problem. It is for this reason that we recommend later a fresh start in the form of new bioengineering institutes, and go on to venture into the controversial waters of medical education with suggestions of more technical and scientific premedical training for physicians.

Recognizing the difficulty involved in solving such problems, the panel nevertheless believes that the introduction of innovative engineering technology is desirable as a means of improving the effectiveness of health manpower. We have no easy solutions to offer to the problems but hope to encourage their continued frank and constructive discussion by presenting the recommendations in the following section based on our findings and consistent with our general conclusion that increased support and federal encouragement of the utilization of the results of basic research and of available and developing technology in the preventive, curative, and educational aspects of health care are desirable. Such support, accompanied by some federal action that would lead to the proper modification of the factors which affect the demand for effective health technology, can make a significant contribution to the health of our citizens and result in a much more efficient utilization of health manpower without exacerbating the rising cost of medical care.

Recommendations

Automated Laboratories and Preventive Medicine

The panel believes that new automated medical testing laboratories and other devices will provide large amounts of patient data at low cost. For instance, it is now cheaper to do the standard 12 blood determinations automatically than it formerly was to do a few prescribed ones manually. An imposing mass of quantitative data, not limited to blood typing, would naturally be built up on the population in health as well as in illness at relatively frequent intervals. This data should provide important new diagnostic insights into the state of an individual's health.

We believe that the availability of such low-cost data will produce a qualitative change in diagnostic medicine. This procedure should leave the physician free for actual patient examination and interpretation of the laboratory results in the context of his knowledge of the patient's general state of being. The panel believes that the availability of such low-cost reliable data will enable better diagnoses to be made with less total cost and effort. However, this transformation will place new demands on the physician's scientific and statistical training. These demands should be considered in redirecting medical education along more technical lines.

The panel believes that a desirable expansion of the practice of preventive medicine could be stimulated by immediate implementation of more broad-spectrum testing. Comprehensive automated medical testing laboratories are needed for such testing. The potential value of broad-spectrum testing of electrolytes, hormones, enzymes, blood flow, etc., in comparison not only with population norms but self norms, seems to be insufficiently explored. In part, this is due to the traditional orientation of medicine toward disease. It is also due to the great expense of such tests in the past. The potential benefits of the new approach are great, not only in the reduction of costs of medical treatment later in the life of the patient but also in maintaining the vigor and effectiveness of the population as a whole.

These laboratories should be staffed primarily with technicians and located so as to optimize the tradeoff between the advantages of central staffing and equipment and the problems of transporting people or specimens. We envision that testing laboratory results will be fed into data banks and furnished to physicians as required. They would also serve specialists, hospitals, and research or emergency clinics as needed. The quality and reliability of such laboratories should be monitored by means of calibration samples sent at random and recorded and analyzed in data banks, as is done now in Sweden.

> *The panel recommends federal support of the instrument development work and also of "pilot plant" automated testing laboratories necessary to create a series of such testing laboratories as a vital part of the system of health care.*

Federal patent policy may need changes in connection with such support so as to treat public funds fairly and still encourage manufacturing industry to produce and market the apparatus. After the initial development of instruments has been completed, these testing labs could be operated in a variety of ways. National, state, and private ownership are all feasible.

Patient Data Bank

The panel believes that there is an urgent need for an improved capability to provide medical records for the patient. We are persuaded that the advances in modern data processing and communications provide a feasible and perhaps unique solution for this problem in the form of a patient data bank. We see such a data bank as an accumulation of individual medical history and data, promptly accessible, in toto or selectively, to authorized physicians at the point of care. The patient data bank would receive information from physicians, hospitals, and testing laboratories via telephone lines acting as transmission links. The input and output from the data bank can be either graphical (x-rays) or in familiar typed form. Such a data bank should yield medical records both more complete and more readily available than has ever been the case.

The patient data bank should allow a much more sensitive characterization of the state of the individual in comparison with his own normal status as well as in comparison with the population average, from which the individual may depart substantially and consistently. But it can also furnish selective summaries for emergency care. The information in the data bank can be safeguarded by reliable techniques so that it is available only upon authorization by the individual. In fact, with technological, organizational, and legal safeguards, information would be more secure in this system than in the present form as a written record. Nevertheless, such information could still be made available, without identification of the individual, to support research and epidemiology, distribution of test results, large-scale indices of health, etc., without compromise of privacy. Such analyses could establish wide data-base norms and more accurately determine the significance of deviations from the norms, the meaning of trends and distribution, and the significance of correlations between volumes and changes in various measurements. The number and location of data banks will be a compromise between communication costs and economics of large-scale storage and processing.

The panel believes that such computerized patient data banks are essential to an efficient health care program.

> *The panel recommends that a central patient data bank be implemented, with adequate safeguards, at an early date on an experimental basis within the complex of federally operated hospitals, and that planning be carried out for a national system.*

Medical Reference Service

An interesting capability could be provided by modern technology in the form of a nationwide medical reference service. Utilizing the same technology as the patient data bank, this service would provide current information on virtually all medical subjects at the point of care. Such an anthology would in turn be based on statistical analysis of available data on the entire population. It could immediately correlate symptoms with diseases. It could suggest standard remedies or drugs, including data on the prohibitions and side effects. Another aspect of the service could be a continuously updated text of medical and pharmaceutical references and the provision of material for continuing medical education.

Such a medical reference service is further in the future, since it requires a large amount of material before effective utilization can be realized. For this reason, it is fortunate that the link which gives access to the patient data bank would serve as well for the medical reference service. A medical reference service would provide reference information needed by the physician in great detail, thereby helping to treat whatever problem might arise in remote locations. Such help would probably reduce referrals to subject-specialist physicians.

An example of a task which a medical reference service could do well (since it is being done routinely today in this way) is to accept electrocardiographic signals over the telephone line, responding after a minute or so with a classification of the electrocardiogram and with aids to diagnosis.

The panel believes that a medical reference service has great promise.

> *We recommend that the Federal Government sponsor the study and evaluation of an experimental medical reference system which could serve both hospital-based physicians and those in private practice.*

Emergency Medical Care

More than 10 million people are disabled each year by accidents. Accidents are the most frequent cause of death from ages 1 to 35. More than 10 percent of hospital beds are occupied by the accidentally injured.

Emergency care involves coordination of various professions, life or death decisionmaking, frequent physical intervention, and an unbroken chain of command and control.

The handling of medical emergencies lends itself to significant improvement, much of it through technological means. Our investigations indicate that failure to locate and identify rapidly the medical needs of emergencies is a prevalent condition. The problem of detection and communication has had considerable attention in other fields and been alleviated through various applications of technology. The medical version of the problem occurs, for example, at the scene of an accident on isolated roads, where the patient may be unconscious, or at home, where the family may not recognize or be able to describe the emergency. Once the emergency has been detected, it is necessary to select the nearest appropriate emergency care unit, and to provide rapid transportation to the patient scene and to the care facility. This is a problem of transportation design and its command and control; technology can also make important on-going contributions here. There is a further need to intensify the exploration of short-term life-preserving devices which can be taken to the scene of an emergency and used to keep the patient alive during the critical period of transportation to a hospital or emergency clinic.

The panel recommends that the Federal Government study and seriously consider sponsoring the development and implementation of a system for the emergency medical care of accident, heart attack, stroke, and trauma cases.

The essential elements of such a development are:

1. Prediction of the probability of various emergencies by correlation of data on geographical, seasonal, temporal, ethnic, etc., factors.
2. Systems and cost-effectiveness analysis to establish the cost and payoff of such a system and the optimum types, location, and staffing of emergency care facilities.
3. Prompt location and identification of emergency medical needs by means of existing detection and communication techniques.
4. Immediate access to relevant data on the patient involved and inventory of available capabilities.
5. Rapid correlation of needs with available facilities, and optimization of decisionmaking.
6. Improved transportation of care to patients and of patients to emergency facilities.
7. Making available life sustaining devices for use during transportation or prior to definitive therapy.
8. The proper organizational forms and the funding methods for such a system.

The technology required to provide an adequate system now exists, and the benefits to be derived have been well documented.

Experimental Hospitals

The traditional hospital was conceived as a voluntary and charitable institution or as a government institution created out of the necessity to handle the wounded or diseased indigent. The donation of time and supplies by diverse groups has done little to foster the development of cohesive and innovative organizations.

Medical discoveries during the last century have greatly reduced the dangers of contagion and infection, and hospitals have emerged as a major, though not the exclusive, theater for the delivery of health care. Many new methods and techniques of treatment must be tried there or not at all. New methods sometimes require redesigning parts or all of a hospital, and such experimentation is evidently costly. Consequently, it is often impractical for the financially precarious hospital industry to undertake this expensive and very risky type of research and development.

Nevertheless, we believe that technology can offer a great deal to the development of new methods and techniques for the delivery of health care. Physicians working in partnership with others in the hospital environment could provide new insight in the following areas:

1. The development of improved concepts and performance of research, development, "proof of concept" demonstrations, and evaluations of various types and schedules of treatment. The verification of the need for and development of new hardware and software conceived during investigatory work in the hospital.
2. Performance of system analysis and cost effectiveness studies on the existing medical care system and its components.
3. Dissemination to health care organizations of the resulting information on improved health care systems.
4. The application of modern communications and data handling and retrieval systems for the storage and processing of patient information.

In order to provide a facility and staff to perform these needed experimental functions, the panel recommends that the Government and/or private nonprofit foundations establish a number of hospitals whose explicit purpose it is to develop and demonstrate new techniques of health care.

It is recognized that such an experimental program is much more expensive than routine medical care, so the experimental hospitals should not be expected to be self-supporting and will require continuing support. In addition, the need for capital for the implementation in other hospitals of those developments which prove to be desirable, should be anticipated.

Encouragement of Applied Research and Development in the Medical Care Field

Having so severely criticized the medical care field in the introduction for its lack of efforts toward applied research and development, as well as the use of already developed technology, the panel would like to follow through with thorough recommendations which would correct the situation. Believing, as it does, that the present situation arose because of lack of strong competitive incentives for cost reduction and improved capabilities, the panel feels that the situation can perhaps best be remedied for the long term by actions which encourage such incentives. On the other hand, Federal actions which really encourage such incentives will impinge on the organization, financing, and operations involved in the delivery of medical care. Such recommendations appear to be beyond the scope of this panel. In addition, the delay that would occur before such incentives have much effect in controlling costs may be untenable.

The panel has concluded that the national expenditures on applied research and development should be ultimately increased to at least 4 percent of total health care expenditures, in contrast to the present figure of less than 1.8 percent. It also believes it desirable that, to the extent practicable, the expenditures should be encouraged to be made by private sources rather than directly by the Government. In making its recommendations concerning incentives for a vastly increased level of applied research and development, the panel was split as to the appropriate Federal actions. This was due largely to an awareness of the social and political impact of any mechanisms chosen. As technologists, we feel that Federal action is indicated but that a group with a broader background than that of this panel should deal with the problem.

Bioengineering Laboratories

The panel had difficulty in identifying well supported and well staffed centers of excellence focused on supplying new technology to the health care system. The interdisciplinary group experiments in academic settings suffer from noncritical size plus the distractions and partition of academic organizations. Also, there does not seem to be an adequate incentive or attitude within industry. And yet the need clearly exists to bring physicians, biologists, engineers, chemists, and physicists together in a goal-directed partnership with adequate resources to tackle major technological problems. Such special teams have been needed before to do other national jobs, and new groupings were formulated. Los Alamos and Livermore Laboratories were established to bring diverse talents together on the atomic bomb design. The Radiation Laboratory at MIT provided such a focused effort on radar development in the Second World War, and JPL at Cal Tech does this now for space exploration.

We feel that the problem of bioengineering deserves such a focus because we can see no other way to solve the problems of adequate support and to replace professional competition among physicians and scientists with a vigorous goal-directed spirit. These laboratories would provide competence in a wide variety of skills for the timely solution of those high-priority medical and biological problems which are too complex or too unattractive to industry and which have not yet been dealt with effectively by any single branch of science. We believe that these goal-oriented projects provide the motivation for the application of technology and for innovations which are currently beyond the "state of the art." It can be expected that a wide variety of new medical or biological instrumentation as well as the development of materials and devices useful in other areas of the medical field would be an additional indirect benefit.

We believe that two such groups would provide important competition for new ideas and developments. We imagine each group to be staffed with no more than 500 professionals, with a supporting staff of comparable size. Such a laboratory should be closely associated with a research hospital. We see also great benefit in creating laboratories of this type in a nonprofit and non-Government form. The interface role of a group of universities seems to be a common element in successful ventures of this type and we would recommend that course. We believe that such groups will act as national pacemakers and will serve to stimulate both industry and research to enhance national health care.

A word of caution is perhaps worthwhile here. For such groups to be most productive, it is important for a mutually interacting yet harmonious relationship to exist between the group leaders and the responsible government representatives. Such a relationship involves, among other things, the careful selection of task-oriented programs and the amount of detailed government control of such programs. The competence and maturity demanded of the government representatives under such an arrangement make this selection a matter of critical importance.

> *The panel recommends the creation of two or more bioengineering laboratories organized as non-Government, nonprofit affiliates of first-class universities.*

Medical Standards Laboratory

If we are correct in our conviction that new technology will play an increasing role in health care, we must also face the problem of regulation and quality control. This is a three-sided problem, which has been partially solved in regulation of the drug industry. The first need is for certification of new devices, treatments, and given data processing systems as "patient worthy," just as the CAB and FDA now certify aircraft and drugs for public use.

Renal dialysis equipment, cardiac monitors, multiphasic testing centers, ultrasonic mapping devices, blood-flow meters, etc., all require extensive development and design verification testing before public use. There is a coupling between development and manufacturing which is necessary to the successful and timely introduction of new technology and techniques.

The second need is for quality control of technological production. We believe that the only possible way to do this is by random, calibrated sampling, and we believe that this is a proper regulatory function of the Federal Government. Both of the needs represent a current no-man's land, which must be occupied promptly before tragic accidents close the door to technological contributions.

The third need is to provide the consumer with information, certified training, and sophisticated discrimination. In the first instance, the consumer is the Government itself, although hospital administrators and physicians are already deeply involved in decisions to purchase and employ new technology. We believe also that the patient himself is taking an increasing interest in such matters and will demand better data on qualifications. We believe that this type of information must ultimately come from a well respected Government center—like the National Bureau of Standards or the FDA. Conversely, we believe that the progressive education of consumers—physicians, administrators, and patients—will hasten the introduction of useful technology and help to avoid wasteful or tragic misapplications.

> *The panel recommends that the Federal Government establish a national medical standards laboratory to set standards, and test, compare, and calibrate all types of medical products, including drugs, supplies, prosthetic and corrective devices, and artificial organs.*

The results would be available to appropriate medical professionals, specialists, hospitals, patients, and manufacturers.

Overall Systems Analysis

We are convinced that in order to realize the potential inherent in existing technology, it is essential that the health care industry be studied carefully and continuously in order to establish and maintain a proper relationship between incentives and responsibilities. Such an overall systems analysis would proceed first by identification of the basic objectives, responsibilities, and functions of the total health care system. In setting up possible models for such a system, an analysis would be made of the functions and responsibilities of each component area, as well as the interacting requirements among components. In creating such models, one would obviously be guided by detailed studies of the current system areas for purposes of retaining efficiently working elements and modifying less effective ones which owe their existence solely to force of habit or history.

The type of study we are recommending is sometimes known as operations research or systems analysis. Such studies are regularly and successfully employed in a number of private industries and prominently in the Department of Defense. They can be done well or badly; and their value depends critically upon the quality of the personnel. What is valuable and distinctive about the basic approach is that it considers a set of interrelated activities such as the health care industry as a system and begins by seeking to identify the objective or objectives of the system, relating them to one another, and evaluating their relative importance. The operation of the system is then described in great detail, and its various components, as well as their interrelation and the goals of the system are identified. The responsibilities, incentives, implements and capabilities of the various decision makers in the system are analyzed and critically evaluated in terms of their contribution to the operation of the whole system.

> *The panel recommends that the Federal Government conduct and sponsor systems analytic studies of the overall health care system. These activities can be performed by organizations within the government, industry, nonprofit organizations, or educational institutions.*

Report of the Panel on the Organization of Health Services

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Introduction

We believe that the critical shortage in health manpower could be reduced by more effective and efficient use of personnel. To achieve some improvement, however, existing patterns in the organization of health services must be restructured in major ways.

Assumptions

Certain assumptions regarding the economic, social and technical environment of the immediate future, underlie the panel's recommendations:

1. Minimal Financial Barriers. Within the next 15 to 20 years most financial barriers to needed health services will have been removed for the vast majority of the population, through a combination of insurance—private, extended compulsory social insurance, and publicly subsidized voluntary insurance—and broadening of the definition of medical indigency as a basis for Government assumption of the cost of care. Regardless of the means employed, reduction in financial barriers may create new bottlenecks and intensify old problems in the delivery of health services, if present organizational patterns persist.

2. Increasing Demand for Services. The rate of increase in demand for health services is expected to continue, if not accelerate. Population growth, scientific advances, and increased disposable income will continue to expand demand. The training of health professionals and improvements in their productivity are unlikely to keep pace. Pressure for more effective and economical use of manpower will continue to mount. There is no apparent leveling off of the demand for health services and some experts have predicted an increase from the present 6 to 25 percent of the GNP for health services.

3. Changing Roles of Physicians and Other Health Personnel. As effective demand exceeds the capacity of available manpower to provide services in traditional ways, and as performance standards increase, tasks and responsibilities will need redefinition. The physician's role must change in order to conserve his time and skills. There must also be greater emphasis on group or team work and concomitant reassignment of functions and responsibilities. Careful analysis of skill requirements will enable the delegation of more functions to ancillary personnel. Many jobs will become more clearly defined and standardized.

4. Need for Preventive and Rehabilitative Services. Changing disease patterns will require improvement and expansion of preventive and rehabilitative services for the chronically ill, particularly with respect to heart disease, stroke, cancer, mental illness, and mental retardation. Relatively greater population growth among the younger and older age groups who have the highest utilization rates will exacerbate these influences.

5. Health To Be Related to Other Social Services. Health services are likely to be articulated more closely with educational, correctional, and rehabilitative services. Community development and urban renewal will invite increasing participation from the health professions, particularly for special education programs in public schools, neighborhood health centers, rehabilitation programs for criminals, and designs for healthier urban environments.

6. Neglected Populations. There is increasing dissatisfaction with the poor distribution of health services to various subpopulations. The elderly, the geographically isolated, the urban poor, and migrant workers often fail to receive the full range of medical services. Public opinion is becoming increasingly intolerant of such inequities. Equality of services without regard for ability to pay or place of residence will be expected. To meet these changing expectations, a variety of new approaches must be encouraged.

7. Available and Accessible Primary Care. Physicians or their surrogates will be expected to so organize themselves that medical care will be continuously available at all hours through a system of geographically accessible and interrelated centers. Direct telephone and personal discussions with nonphysical personnel may precede and augment the actual confrontation of patient and physician. Many of the dangers of self-treatment can be avoided and unnecessary gravel reduced by such measures without impairing the quality of care.

8. Increased Public Concern with Effectiveness and Economy. As the relative cost of medical care rises and treatment capability improves, the demand for assurances that health services are effective and efficient will increase. Pressure for public accountability will grow as payment for services becomes centralized in third parties—governmental or voluntary. Both capabilities and costs of the system will be scrutinized.

9. Quality Assurance. Both the professional providers of care and the administrators of health services will be held accountable for levels of performance. Existing controls, such as licensure, accreditation, and certification by specialty boards, will be strengthened to insure minimum standards of health care for all. Better techniques for measuring effectiveness and outcome of services will make it possible to assure acceptable levels of performance in all parts of the system.

10. Improved Geographic Distribution of Health Manpower. There will be modest improvements in the geographic distribution of health personnel in relation to need. These improvements are likely to stem from better communication and transportation services as well as the creation of subsidized programs for previously neglected populations in rural and urban areas.

11. Continuing Mixture of Public and Private Effort. It seems unlikely that any one form of sponsorship or operational authority will exclusively prevail. Consumer choice is fundamental to our economy. The continued mix of private, voluntary, proprietary, and public or governmental services is anticipated—a state of affairs that should provide ample opportunity for competition, innovation, and experimentation in the provision of optimum services.

12. Clarification of Responsibility. Responsibilities for the provision of health services at all levels will be defined more clearly. Coordination and integration of services will improve among private and public organizations at local, State, and national levels. Consumers will demand public accountability for the planning and delivery of all health services.

Patterns and Problems

This section describes current patterns of service with emphasis on several major problems to which they give rise.

The Consumers. The 200 million people in the United States today are actual or potential consumers. They may receive care directly as personal health services or benefit indirectly from environmental and protective services. The inevitability of death and almost universal experience with disease and disability make most of us eventual consumers of health services.

General characteristics of the population affect both need and demand for health services:

1. *Residential distribution.*—Today, most people live in approximately 52 million household units; by 1980, 73 million households are predicted. At any one time some 1.9 million persons are in institutions such as prisons, military bases, chronic disease hospitals, residential schools, and nursing homes. Personal health services will be required by the residents of all these units.

2. *Geographic distribution.*—The population is becoming increasingly urbanized. From a 50/50 balance between urban and rural in 1920, the urban fraction has grown to 66 percent and is expected to reach 75 percent by 1980. Population densities vary considerably in regional, metropolitan, and neighborhood levels, but rural areas and urban slums are experiencing increasing difficulty in obtaining adequate health services.

3. *Population mobility.*—One-fifth of the general population moves annually, and the average family moves once every 7 years. Under these conditions, life-long continuity in the relationship between a family and

a particular physician is often impossible. Certain occupations involve considerable geographic mobility; e.g., migrant farm laborers, truck drivers, commercial airline personnel, construction workers, military personnel, and middle-management executives.

4. *Age distribution.*—The population includes large numbers of people at each end of the age spectrum when mortality and morbidity rates are high. Today there are 18.5 million persons over 65 years. There are 19.9 million children under 5 years of age. By 1980, there will be 25 million persons over 65 years and between 25 and 28 million children under 5. Current rates of physician visits for these age groups are nearly equal (5.5–6.7 visits per persons per year); approximately twice the rate of 2.8 for those in the 5–14 year age bracket.

5. *Environmental hazards.*—Environmental hazards affect the entire population and pose new challenges for effective community action. Currently there are 50,000 deaths and 52 million injuries from auto accidents annually. Other environmental hazards include: water and air pollution, radiation, adulteration and contamination of foodstuffs, and accidents of all kinds.

6. *Income levels.*—The average household now has $7,000 annual disposable personal income, a figure expected to rise to $10,000 by 1980. Since families spend more proportionately for medical care as income increases, this means greater demand for health services.

7. *Health insurance.*—In 1940, 12 million persons or 9.3 percent of the civilian population had some form of health insurance. By 1965, the number had risen to 156 million or 80.9 percent. The insurance coverage fraction of the total consumer expenditures for health rose from 12.1 percent in 1950 to 32.6 percent in 1965.

8. *Expenditure patterns.*—Medical care and death expenses rank sixth in personal consumption expenditures, following food, housing, household operation, transportation, and clothing. Consumers spend nearly equal fractions on hospital care (27 percent), physicians' services (26 percent) and drugs (20 percent). The remainder is spent on dental services (10 percent) and other items including health insurance, nursing home care, and eyeglasses. The total expenditure for personal health services was $33 billion in 1965.

Consumers will have increasing personal disposable income to spend on health services. Age groups requiring the most medical care will grow. The number of households is expected to increase sharply in the next decade, particularly in the metropolitan areas.

Providers. Currently there are 2.5 million persons in the health service industry, distributed over some 40 major job classifications that require specific medical training. The largest occupations in 1960 were:

1. Professional nurses	581,000
2. Hospital attendants	391,000
3. Physicians and surgeons	230,000
4. Practical nurses	208,000
5. Medical and dental technicians	139,000
6. Pharmacists	92,000
7. Dentists	87,000
8. Office assistants	72,000
9. Therapists and healers	37,000
10. Dieticians and nutritionists	26,000
Total	1,863,000

Hospitals and medical offices employ the largest proportion: approximately 63 percent of professional nurses work in hospitals; an equal proportion of doctors and dentists work in private offices.

Most health personnel live in urban and suburban areas. The general shift in movement of the Nation's population from rural to urban areas is outdistanced by the migration of physicians to urban areas. The 53 Standard Metropolitan Statistical Areas contain 89 million people, 49 percent of the total short-term non-Federal hospital beds, and 61 percent of all non-Federal physicians, including 79 percent of the psychiatrists, 67 percent of the internists, 64 percent of the pediatricians, and 48 percent of the general practitioners.

The pattern of specialization in medicine has progressed to the point where there are only 69,000 general practitioners among the 280,000 active physicians in the United States. The 10 largest specialties are:

1. General practice	69,000
2. Internal medicine	39,000
3. General surgery	28,000
4. Psychiatry	18,000
5. Obstetrics/Gynecology	17,000
6. Pediatrics	16,000
7. Radiology	10,000
8. Anesthesiology	8,900
9. Pathology	8,800
10. Ophthalmology	8,600

Specialization challenges the feasibility of reliance upon individual or single specialty group medical practice as the major source of primary medical care, and necessitates more cooperative arrangements. Group practice has increased in recrent years: there were 239 groups in 1932; 368 in 1946; 1,154 in 1959; and 5,450 in 1965. The 1,154 groups in 1959 employed 10,085 full-time physicians. In 1965, there were 26,000 doctors at work full-time in groups, the largest of which employed 450 full-time physicians representing all major and most minor specialties.

Facilities

In 1966 there were 7,160 hospitals and 1,678,658 beds in the United States. The majority were non-Federal short-term hospitals. In this group of 5,812 hospitals with 768,479 beds, there were 3,440 voluntary nonprofit units, 1,520 State and local governmental units, and only 852 proprietary hospitals. In addition, there were in 1965, 443 Federal hospitals with 173,962 beds, of which the Veterans' Administration controlled 118 hospitals with 59,683 beds and the Armed Services administered 187 hospitals with 36,066 beds. There were 639,000 beds in non-Federal psychiatric hospitals; the majority in State and local governmental units. Although there were only 315 such hospitals, they were large and accounted for 622,605 beds. Psychiatric beds nearly equal the number of beds in all short-term general hospitals combined.

In 1960 the total gross capital invested in hospitals was estimated at $18 billion, of which $14.7 billion represented land, building and equipment, and approximately $11,000 for each bed and $71,000 for each practicing physician. Recently, hospital construction has increased. Capital investment was $6 billion in 1947, $13 billion in 1956, and $18 billion in 1960. Today, 50 percent of these assets are owned by nonprofit units; 36 percent by non-Federal governmental units; and 12 percent by the Federal Government. Proprietary ownership accounts for only 1.7 percent of the total.

It is difficult to estimate the number of medical clinics, medical office buildings, and individual offices of private practitioners. Since fully two-thirds of the doctors and dentists are in private practice, it may be assumed that the number of single and small office clusters is large, representing an important, but widely dispersed set of health facilities.

In addition, there are 20,000 nursing homes with 850,000 beds. Staffed by professional and practical nurses, these units provide continuing care for the elderly and terminal care for the dying. Capital for nursing home facilities is usually derived from operating revenues; capital for renovation and new construction of hospitals is usually provided by private fund raising and Federal tax revenues.

Responsibility and Authority for Health Services

Responsibility and authority for health services is widely dispersed. Responsibility is shared by: (1) Licensed professionals and their associations; (2) local government health officials and boards of health; (3) hospital administrators and boards of trustees; (4) other Federal and State governmental agencies; (5) insurance carriers; (6) professional certification, accreditation and examination boards; and (7) labor unions and large employers.

Most communities divide responsibility between the public and private sectors. The public sector is responsible for environmental sanitation (including sewage and solid waste disposal) and specific programs such as communicable disease control, preventive services for mothers and children, and the financing of services for the indigent. Professional practitioners, operating both independently and through their local professional societies, are largely responsible for personal health services. A physician exerts additional influence on clinical practices in hospitals with respect to his patients.

Authority to license health professionals, hospitals, clinics, and nursing homes is assigned to various State bodies. The State has major responsibility for hospitalization of the mentally retarded and mentally ill and for a wide range of health related programs, including those regulating air and water pollution and environmental radiation. Responsibility for the control of contagious diseases and epidemics rests typically with State authorities, although the operation of programs is usually delegated to local health departments. Many States also finance medical and dental schools. Finally, insurance premiums and reimbursement rates for hospitals often are controlled at the State level.

The Federal Government provides medical services for the Armed Forces and their dependents, for veterans, for mariners, for Indians on reservations, and for certain American personnel stationed outside the United States. The Federal Government is responsible for safety of drugs, biologicals, and food products. It supports medical research, training of health personnel, and construction of health facilities (especially hospitals, research laboratories, and more recently, educational facilities). Recent amendments to the Social Security Laws (title XVIII) provide funds for the major portion of medical expenses of those over 65 years. As States implement title XIX, the Federal Government will assume more of the costs of medical care for indigent and medically indigent persons.

Pharmaceutical firms play a key role in development and distribution of drugs. They control the availability and prices of drugs, and through their numerous publications and salesmen, provide physicians with current information on medications.

Responsibility for organization and administration of health services is pluralistic and decidedly fragmented. Health services are categorically defined and categorically administered by combinations of public, private, and voluntary groups, without regard for the development of defined objectives and priorities.

Major Features of the System

The health services system of the United States has strengths and weaknesses. The major strengths are:

1. A strong base of biological research and scientific medical knowledge that serves continually to improve the curative and preventive capability of health practitioners;
2. A number of strong university medical centers with super-specialists and good clinical research staffs that provide excellent services;
3. Direct access or access by physician referral to most kinds of medical care in the country for those with the knowledge to ask and the means to pay;
4. A set of widely dispersed community hospitals and medical offices that provide convenient work sites for physicians, dentists, and surgeons;
5. Some group practices, frequently combined with prepaid comprehensive insurance and occasionally combined with hospital and pharmacy services;
6. A highly innovative and productive pharmaceutical industry;
7. An effective system for the control of certain environmental health hazards particularly those affecting food sanitation;
8. Support for the provision of health services to indigent persons;
9. Professional organizations with a history of fostering high standards of quality;
10. The freedom to innovate and experiment with new ways of providing health services in a pluralistic system; and
11. A tradition of voluntary concern and effort.

The major weaknesses are:

1. Lack of prompt primary medical care—available at any time of the day or night;
2. Inappropriate and sometimes hazardous use of hospitals and nursing homes because of a lack of more appropriate alternative health services;

3. Inefficient use of highly trained specialists;

4. Fragmentation of services by such characteristics as treatment mode, age of recipient, disease type, occupation, and income level;

5. Undesirable encouragement of health facilities operating at marginal sizes, duplicating scarce equipment, and placed in inappropriate locations;

6. Health insurance that unduly influences the type of care patients receive and the settings in which they receive their care;

7. Inadequate information on the operating characteristics of the health services system, including data on manpower, services, costs, and facilities;

8. Absolute shortage in numbers and maldistribution in the proportions of scientists, practitioners, teachers, and administrators;

9. Solo practitioners who are isolated from other segments of the health services system;

10. Failure or inability to make the latest advances of scientific medicine promptly available to the patient because of inadequate communication between the source of new medical knowledge and those applying it in clinical practice;

11. High costs of most medical services;

12. Lack of systematic control over quality in the provision of clinical services;

13. Inadequacies in the mechanisms for providing basic health care to the family as a unit;

14. Failure to control environmental hazards, including air and water pollution, radiation, contamination of food stuffs by chemicals, and accidents; and

15. Insufficient emphasis on preventive services.

Effective action should be based on judicious use of incentives, rewards, and sanctions to channel the health care system into new patterns of development. While the panel was indeed mindful that the Commission's primary concern was health manpower, recommendations are directed primarily to matters concerning the organization and delivery of health services in the belief that organization is a key factor in the effective and efficient use of trained personnel.

Recommendations

The panel addressed itself to the problem of organization within the context of the existing patchwork of laws and policies concerning the provision of health services in this country. The following recommendations are directed both to modifications in major public policies and to suggestions for the encouragement of new patterns of organization.

1. We recommend the encouragement of competitive large-scale integrated health services systems throughout the country. There are already several health services systems that link prepayment health plans with organized medical groups and a spectrum of health facilities, including hospitals and ambulatory care centers. Similar systems should be encouraged both under competitive conditions and under a variety of sponsorships, including private, nonprofit, public authority, and consumer groups. Such systems may require subsidies in the form of grants until the services become self-supporting on a tax or income basis.

2. We recommend that specially organized ambulatory care centers be established especially in geographic areas of need such as urban slums, revitalized urban neighborhoods, new towns, and isolated rural areas. These centers would provide primary care and act as the major entry point to more specialized and more distant services. At a minimum, they would include primary physicians, who may be either general practitioners or teams of internists and pediatricians with ready access to other specialists. The disciplines of public health nursing and social work should be included. Indigenous ancillary workers should normally be an integral part of the program. Centers would also be responsible for making 24-hour services available including basic laboratory, radiology and pharmacy services. Similarly, they would assume responsibility for organizing programs of home care and for establishing service agreements with hospitals, medical schools and other specialized health resources. In isolated rural areas where population density is too low to justify such centers, transportation and communication services should be developed to move information, patients, and specimens to the nearest center.

3. We recommend the removal of barriers to geographic and occupational mobility for all categories of health personnel. Legal barriers to geographic mobility should be reduced by standardizing requirements for licensure of health personnel. More uniform regulations and reciprocity among states are needed. To achieve such standardization, Federal guidelines, if not Federal licensure, will be required. Occupational mobility should be facilitated by developing core curricula in the health sciences and assisting students to move from one field to another without repeating the entire training sequence.

4. We recommend the development and widespread application of techniques to provide reliable, empirical information on variations in

performance levels and in quality of patient care in hospitals, in doctors' offices and in patients' homes. Despite difficulties of empirically measuring both process and end results of performance in the health care field, it is important to strengthen present methods of approximation and to develop new approaches. New methods for describing the activities of hospitals, doctors' offices, and other health care facilities with respect to the characteristics of patients and health professionals in relationship to diagnoses and services rendered are needed. The development of widely applied reporting systems such as those currently in use in other countries or variations of the Professional Activity Study or the Medical Audit Programs widely used in the United States should be encouraged. Similarly, it is essential to have adequate data about the practice of medicine. More information is needed concerning the distribution of complaints presented, conditions diagnosed, treatments recommended, and outcomes achieved. When this information is available and properly processed by modern technology, it should be possible to study utilization patterns and to evaluate end results more effectively. It should also be possible to identify differences in performance level and to take corrective action where necessary. Procedures to assure quality are as essential to minimize the potential hazards to life and well-being in the health industry as they are in the commercial airline industry, the space program, and the production of drugs and biologicals. The entire system of licensure, examination, accreditation and professional discipline should be reviewed to determine how improvements might be made to assure minimal levels of performance nationally.

5. We recommend the rapid and widespread application of automated diagnostic and laboratory services for mass medical screening of large populations and for diagnostic workups for nonemergency hospital admissions. Rapid, reliable, highly automated, multiphasic diagnostic systems are available. These systems employ highly trained technicians and nurses but few physicians. Summaries of findings are available when the patient completes the examination process. Automated diagnostic systems deserve evaluation and refinement. They could be made available to hospitals, primary care centers, and doctors' offices. Such methods should free physicians to spend more time on interpretation, education, management, and continuing medical surveillance of their patients.

6. We recommend the utilization of cost-benefit analysis and cost-effectiveness techniques to aid the decisionmaking processes that affect health service programs. This recommendation applies to the health effort as a unified whole and to component organizations with responsibility for planning and operating health service programs. These programs should confront the central issues of allocation of effort and scarce resources. At the present time, decisions are made on a haphazard, opportunistic, and personal basis. If a more balanced allocation of resources to the areas of education, service, and research is to be achieved, a more explicit set of values, priorities and decisionmaking procedures must be developed.

7. There should be a Council of Health Advisers, similar to the Council of Economic Advisers, based in the Office of the Secretary of Health, Education, and Welfare. This council should be staffed by individuals from government, universities, health services, industry, and the health professions. Members would spend 2 or 3 years with the Council which would be supported by a competent secretariat. Obviously, this Council would need to work closely with all appropriate branches and departments of Government and should be given the same privileges and access to information as a Commission responsible to the Office of the President.

The scope of concern for this Council should be broad. All health and health related interests of the Federal Government should fall within its purview. Such planning would obviate the crash programs that so often accompany unforeseen crises. It would also permit more rational allocation of Federal resources through grants in aid to States and localities, educational institutions, and individuals. To be effective, the advice of the proposed Council of Health Advisers would need to be based on studies of manpower, training, services, facilities, costs, neglected populations, and research. Such data would help to create a more comprehensive view of the relationships between the relatively autonomous segments of the health care field.

8. We recommend the creation of a National Center for Health Services Research and Development which would be located in the Office of the Undersecretary for Health. Such a Center would be concerned with the development of models for the delivery of health services. The Center would conduct and sponsor original research in the planning, organization, administration, and evaluation of health services and health service systems. Research and demonstration grants should be made available to encourage the development of improved medical care delivery systems. Grants would be made available to states, localities, and appropriate nonprofit agencies to improve the planning, coordinating, and evaluating of services at the regional, State, and local levels.

Demonstration projects could test various staffing patterns and thus develop manpower guidelines for various occupations.

9. It is recommended that the scope for the National Center for Health Statistics be expanded and that the Center be moved to the Office of the Undersecretary for Health. This Center, which has a most sophisticated capability for examining the health needs and health services of the country, should establish categories of data and reporting systems that will meet the needs of all agencies, providers, consumers, and administrators of health services, whether in or outside of the Federal Government. The data collection systems should be decentralized using the Vital Statistics and Cancer Registries as models. The processing of these data at the State level should be uniform. Furthermore, the processing should be distinct from but consistent with separate analyses and evaluations. Data on manpower, facilities, utilization, costs, medical events, deaths, discharges from health institutions, results of work of physicians, and from household interviews about levels of disability and discomfort should be collected. Such information should be made available to appropriate regional, State, municipal, and local bodies, as well as to the Council of Health Advisers. Since manpower needs are inextricably interwoven with data on performance, productivity, and cost, it is desirable that a single Center act to coordinate the information collected by many groups. These arrangements would encourage the development of research programs free of operational pressures that are inevitably present in service-oriented agencies.

10. We recommend a grant program to support career development of Health Service Administrators. The career administrators could move between various levels of governmental and nongovernmental organizations, and between academic and service programs without sacrifice of pension rights and other career benefits. The awards should be made through national competition and every effort should be taken to encourage people with administrative interest and talent to apply. Eligibility should not be limited by academic training or direct administrative experience in the health field. Such a career development program should have a close relationship to the proposed National Center for Health Services Research and Development.

11. We recommend consolidation of the Regional Medical Program Amendments and the Comprehensive Health Planning Act (Public Law 89–749) into one new Act designed to further the orderly planning, organizing, and evaluating of health services on a noncategorical, problem-centered and appropriately regionalized basis. Elements of both pieces of recent legislation should be combined so that a rational and workable plan is made possible for implementation at regional, State, and local levels. The grants for research, facilities, manpower production, and services should be integrated and problem-oriented. The competence of State health agencies should be enhanced by adequate funding. All Federal health grants should be withheld from States unwilling to carry out planning and coordination of comprehensive health services.

NOTE: Two members of the panel are opposed to this recommendation. One member holds that the Regional Medical Programs would be seriously crippled by tying them to generally ineffectual state health departments. The other member holds that since the Regional Medical Program is concerned with a limited range of health service, it is obviously encompassed within, and therefore should be distinguished from comprehensive health planning. The two programs have different purposes and foci. Both are needed but they should not be confused with one another.

12. We recommend that substantial Federal support be given to develop and apply the newer forms of communication technology to all sectors of the health services field. Effective performance of health professionals and organizations depends upon having the right information in the right place at the right time. The widespread use of new equipment and new information handling techniques can significantly help achieve improvements in performance that should enhance the productivity of scarce health specialists. Such technology and the strong research and development activities that have grown up recently to serve the aerospace industry, should be utilized to help the health field make major strides in improving their communications.

13. We recommend the use of Federal and State grants for the development of better and more effective systems for the transportation of acutely ill or injured persons to sources of definitive care. Increased use should be made of special equipment such as helicopters and ambulances with devices for monitoring vital signs, resuscitation and electrical stimulation of the heart, and of transportation of surgical teams to the sites of accidents. To improve the emergency services available to the public, which are often inadequate, the control of ambulance services should be assumed by hospitals and medical groups. In addition, the standards developed by the American College of Surgeons for emergency medical services should be applied throughout the Nation. Not only would accessible, effective emergency services provide better care, but it would reduce the haphazard, inappropriate demands made on physicians and other health professionals for care they are not equipped to provide.

14. We recommend that Federal provision of direct health services be reduced, over time, to the necessary role of providing health care for the armed services. All other personal health services should become part of the regular health services of the community regardless of their particular source of financial support—Federal, State, and local taxes, voluntary health insurance premiums, charitable funds, service charges, or combinations thereof. Separate Federal health services for special population groups are wasteful of manpower and other scarce resources. Therefore, in the interim period before unnecessary duplication is eliminated, extensive use should be made of cross-servicing agreements to make maximum use of any idle capacity that exists in the Federal system.

Appendix IV

The Kaiser Foundation Medical Care Program

The Kaiser Foundation Medical Care Program provides comprehensive health care services to over 1.5 million subscribers on a prepaid basis. The Health Plan arranges for these services by contracting with four large independent groups of physicians, one for each discrete geographic area served (northern California, southern California, Oregon, Hawaii). The Health Plan provides the physicians with facilities by contracting with the Kaiser Foundation Hospitals, which in 1965 comprised 15 medical centers for both inpatient and outpatient services, and by leasing 29 medical office buildings which serve primarily outpatients to the medical groups. The unique features and relationships between the three entities (the Kaiser Foundation Health Plan, the Medical Groups, and the Kaiser Foundation Hospitals), and the services which they provide to subscribers are the subjects of this paper.

The Kaiser Foundation Medical Care Program had its origins in industrial requirements for employee health care in remote locations, rather than in academic institutions, community hospitals, or private practice. Many of its characteristics, therefore, reflect the goal of a system of health care that is essentially autonomous and comprehensive. The principal mission of the program has changed from providing health care to limited numbers of industrial employees to providing prepaid care to a cross-section of American citizenry. With small variations, the Health Plan's role in each geographic area is the same: to collect dues from subscribers and agree, in return, to provide both inpatient and outpatient health care. The Health Plan is a major, though nonprofit, interest of Henry Kaiser and several directors are directors of Kaiser Industries as well. The industrial orientation of the Health Plan has resulted in many of the aspects of the program which will be explored more fully later on:

1. Introduction of large-scale, industrial management capabilities and techniques into the health care system.

2. Separation of professional from administrative aspects of health care, with the former handled primarily by physicians and the latter by trained executives.

3. Provision of support services to both professional and nonprofessional activities.

4. Coordination of professional and nonprofessional manpower, extensive physical facilities, and large amounts of consumable material to serve patients with needs for health care.

5. Conduct of the entire enterprise in an economically self-sustaining manner that generates enough income to permit amortization of large-scale commercial loans, replacement of facilities, and an average growth of 10 percent per year.

Although the Health Plan has a contractual responsibility for the delivery of health care, the primary relationships which it has with the subscribers, the hospitals, and the Medical Groups are financial. The Health Plan has established relationships between itself and the medical groups in which each side is financially dependent upon the other while retaining separate operational jurisdictions. These arrangements are characterized by (*a*) the dependency of both Health Plan and Medical Groups upon the overall financial success of the program; (*b*) yearly negotiation between Medical Groups and Health Plan for the level of capitation paid by the Health Plan to the physicians for the care of each patient; (*c*) absolute control of all professional matters by the Medical Groups; (*d*) control by the Medical Groups of the rate of expansion.

The relationship of the Health Plan with the Kaiser Foundation Hospitals is entirely different from its relationship with the Medical Groups. In this case, the Board of Directors is the same for both organizations, and the Health Plan simply reviews the proposed annual budgets of the hospitals to assure that they reflect the Plan's operating policy for the next year and that they are as efficient and well thought out as possible. Kaiser Hospitals, while they provide facilities for use by the general community on a space-available basis, have primary responsibility to Plan subscribers and physicians. They do not formulate policy or expand at an independent rate.

To match the Medical Group in each discrete geographic area, the Health Plan and Hospital Foundation have a joint regional office consisting of an overall regional manager, a regional hospital administrator, a regional health plan manager, and a regional controller. Centralized business and administrative services are performed on a regional basis for the Health Plan, Hospitals, and Medical Groups. Permanente Services, Inc. (PSI) provides these services for northern California with separate, similar corporations for support of each of the other regions. With considerable variety, these regional services include such things as central purchasing, budgeting, cost control, nonphysician personnel recruitment, etc. The PSI organizations also have opportunities to conduct analytic studies for each region, as well as for the total medical care program with comparisons among regions.

Without anticipating the extensive discussion of financial arrangements later on, the guiding economic principle is that, having agreed to provide services for a given population during a given time at a fixed fee, each member of the triumvirate must perform within its estimate to avoid losing money. Conversely, lower than anticipated costs result in excess funds (which are distributed as additional compensation to the Medical Group members and reinvested in the nonprofit business by the Health-Plan/Hospitals).

Unreasonable increase in budgeted costs by the Medical Groups or the hospitals would result in a premium level so high that the Health Plan would not be able to sell subscribers in an open competitive market. Similarly, efforts by the Health Plan to minimize premium costs are balanced by the wish of the Hospitals to remain in the black and the desire of the Medical Groups to have an adequate number of personnel to provide the promised services. The consumer, for his part, makes his wishes known both through the route of organized membership negotiations such as unions, government workers, etc., and, more importantly, through the dual choice which Kaiser has insisted be available to any subscriber. Thus, periodically any individual subscriber can choose to withdraw from the Plan and enroll in one or more competitive plans such as Blue Cross/Blue Shield, commercial insurance, etc. Many individuals do, indeed, exercise their option to withdraw each year but, on balance, the flow has been from other plans into Kaiser. In southern California, membership has been closed to the outside public and new groups for more than 2 years (but a 10-percent annual growth has still occurred because of additional members obtained from within organizations for which Kaiser is one of the health plan choices available).

This annual growth has kept the membership in a slight lead over the ratio of beds and physicians to patients which Kaiser considers optimal. Rule of thumb estimates for Kaiser growth are one physician, six nonphysicians, and 1.5 to 2 hospital beds per every 1,000 new members. Facility growth is accomplished by borrowing up to 55 percent of costs from commercial sources with outstanding debt presently $57 million.

Five-year periods are used for planning to insure adequate lead time for acquisition of cash, new physicians, and medical facilities.

The Permanente Medical Groups

Professional services are provided to subscribers by the four Medical Groups, one in each geographic area. Organized as independent partnerships or associations of physicians, the Groups contract with the Health Plan to provide comprehensive health services at a fixed charge per subscriber. There is autonomy both between the Medical Groups themselves and between the Medical Groups and the Health Plan. For each region, a Medical Group takes responsibility for both the availability and the quality of the medical care.

The Groups are organized as hospital-based specialty group practices. There are, however, differences among the groups on the ways physicians are deployed to meet overall health goals, with varying roles for specialists and general practitioners. In some areas, the wide geographic dispersion of members has necessitated the distribution of physicians among many small facilities. The formulation and direction of operating policy for each Medical Group is nominally the responsibility of its executive committee, elected from among the physicians. In practice, however, the functions of the executive committee may reflect the wishes of a strong executive director, rather than vice versa. The important principle is that the policies of practice itself are basically left to the individual physician, within overall guidelines set by the executive committee or director of his particular Group.

Recruitment of physicians is at times difficult because of the national shortage of physicians (aggravated by requirements of the Armed Forces), the higher initial incomes available to certain specialties in solo practice or specialty group practice, and the need to seek high-quality personnel while at the same time guarding against members seeking to practice in a group because of dependent needs or lack of motivation. At the same time, recruitment has been made easier by the growing acceptance of group practice by recent graduates.

New physicians enter a 3-year probationary period prior to general partnership. During this time there is a 13.6 percent attrition rate.[1] Once partnership is attained, however, the annual attrition drops to 2.4 percent, of which .6 percent represents withdrawal while 1.8 percent represents retirement or death.

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[1] Figures from northern California Group only.

Overall quality control is achieved by an extensive hierarchy of authority. Below the executive committees and the executive directors, there are medical directors in each health facility and full-time department chiefs within each hospital.

In terms of daily practice, individual physicians are largely free to practice as they see fit. Each doctor has 5½ days of patient-care responsibility per week. Each physician is allowed ½-day per week to further his own education, arrangements for which vary between regions. After full partnership is attained, each physician is granted ½-day of free time each week. Reasonable daily workloads are carried by each physician in daytime hours. There is rotation of night-call duty among physicians.

Patients are free to choose any physician within the group and to change physicians at any time. As is common in solo practice, a patient may be delayed in seeing his personal physician, but immediate service may be obtained from the physician on call. Referrals are generally made to specialists within the Group. However, for specialties for which there is little demand or for which the Medical Groups have been unable to recruit adequately, patients may be referred to outside physicians who are paid by the Group.

In summary, the Medical Groups are large partnerships of physicians with specific though differing organizational and operational frameworks. In general, they are functionally structured along the lines of teaching hospital departments. The Groups individually bargain with the Kaiser Foundation Health Plan, which arranges for them to provide medical care to subscribers on a per capita, prepaid basis.

The Kaiser Foundation Hospitals

To provide facilities for both inpatient and outpatient care, the nonprofit Kaiser Foundation Hospitals and Health Plan have established a network of 29 clinics and 15 hospitals throughout the four geographic regions. These facilities are, like the medical services provided within them, essentially standard in design and execution. Two major hospital design innovations are dual corridors to separate visitor access and professional activities and a decentralized nursing service. No comparisons have yet been made as to the staffing needs and the productivity of the different physical plants. The hospitals offer staff privileges to qualified physicians in the community but, because most of the hospitals operate at higher capacity than surrounding community hospitals, these privileges are infrequently used by non-Kaiser physicians in most areas. The hospitals are not closely related to the surrounding communities since they are designed and operated primarily to meet projected Kaiser Health Plan needs.

Overall administrative responsibility is vested with the directors and officers of Kaiser Foundation Hospitals, who are essentially the same as those for the Kaiser Foundation Health Plan. No separate board exists for each hospital, nor do the Foundation directors meet with individual hospital administrators. Instead, policies established by the overall board of directors are delegated to the regional hospital administrators who, in turn, deal with the administrator of each hospital.

Purchasing, supply distribution, and inventory management are conducted through a separate Permanente Services, Inc. (PSI), in each region. The financial management provided by PSI is, as a result of the large aggregate size of the system, considerably more sophisticated and extensive than that available to the controller of most community hospitals. Detailed budget preparation is used as a primary method of cost control. Departmental budgets are approved by the administrator of each hospital and, in turn, the total hospital budget is approved by each regional hospital administrator. The budget system is based on cost reimbursement, and is a determination of projected needs for the following year in comparison with the last. Internal audit is conducted by PSI and provides unusual guidance for the hospital administrator in effecting cost control and management improvements.

Thus, the administrator of the Kaiser Hospital is not involved with fundraising, establishment of price structure, purchasing, or accounting. Instead, his role is much more like that of a manager of a hotel in a large chain.

Medical services are provided by the Medical Groups, with full-time hospital chiefs of staff, departmental chairmen, etc. The medical director and his staff work closely with the hospital administrator, both because they have mutual financial interests and also because all of the staff are located in or adjacent to the hospital. The Medical Group not only provides inpatient professional services but also has the responsibility for hiring personnel and operating the clinical laboratories, X-ray departments, and the outpatient departments. Only inpatient services, in the most restrictive sense, remain a part of the hospital administrative structure.

Nonphysician personnel management is based on a formal position control plan for each hospital and is backed up with training courses. As is the case in many large corporations, there is a well-developed employee relations department concerned with recruitment, salary and wage administration, training, etc. Procedure and policy manuals for various hospital departments have been developed and appear to be in use. With the exception of dietary services (in which precooked and frozen food is purchased, stored, and simply distributed to the floors where it is heated in microwave ovens), the Kaiser Hospitals do not appear to have any greater substitution of capital for labor than other community hospitals.

Staffing patterns for nursing are similar to those for the rest of California and, because of the relatively low statewide wages (until recently) for registered nurses, the hospitals have more RN's than all other categories of nursing service personnel combined. In addition, they have a policy of limiting patient contact to RN's or licensed practical nurses. Nursing duties also involve many clerical tasks which could be delegated to less trained personnel. The nurses are nearly evenly distributed between inpatient and ambulatory services. In the latter, they work much as they would in the typical medical office building, with roughly one nurse for each physician in the ambulatory center. In this role, they answer the phone and essentially serve as the physician's direct aide.

Although internship and residency programs are not extensively developed in the Kaiser Hospitals, there appears to be a strong educational climate by comparison with that found in community hospitals. Kaiser Hospitals support a variety of continuing education programs as well as appointments to teaching staffs of medical schools. This is augmented by training programs for nurses and, at the nonprofessional level, by a number of inservice training programs conducted by the PSI.

The Quality of Care

Because the quality of care is central to any evaluation of health services, a brief "medical audit" was made of Kaiser operations in northern and southern California. The survey was carried out over a 5-day period of time with approximately 2½ days spent in formal meetings; the remainder in the field. Formal meetings were employed to discuss overall organization and policymaking procedures within the top echelons of the Kaiser Health Plan and the Permanente Medical Groups. The field time was spent visiting various installations chosen by the surveyors. Effort was made to view all of the types of facilities. While in each facility, the medical director as well as randomly selected physicians, nurses, laboratory technicians, and appointment clerks were interviewed. In addition, a limited number of patient records were randomly selected and briefly reviewed for content and completeness.

Professional Personnel—The caliber of Medical Group physicans, particularly the physicians-in-chief, was uniformly impressive. These men were thoughtful and well motivated, not only in the discharge of their individual duties, but in the supervision of the overall performance of their groups. Their methods of monitoring quality hinged on specific chart reviews of new physicians, and inadvertent review of longer term doctors (it is common, both in the office and on house calls, for patients and their records to be seen frequently by different physicians). In a few of the clinics, the chief physician additionally solicited the views of the ancillary personnel in regard to the quality of care delivered. In all of the clinics, a regular meeting of the physicians is held to review both administrative and medical matters. The medical directors meet periodically to discuss various operational problems and policy matters. In addition, in the Southern California Medical Group, one of the clinic medical directors functions in a wider monitoring role by visiting each clinic weekly and reviewing with the director the problems that have arisen. This function extends to include the followup of any consumer complaints that have been reported.

The individual physicians interviewed were of good quality and concerned with the delivery of medical care of a high standard. Although they were clearly aware of the overall economics of the medical group system, they did not apply this awareness directly to any individual patient. On the contrary, they uniformly noted that one of the merits of their system of practice was the ability to deliver medical services without concern for the economic welfare of the individual patient. The one area where economic awareness played a significant role was in hospitalization. In the Kaiser prepayment program, there is no push, either on the part of the patient or the physician, for medically unnecessary hospitalization (e.g., routine diagnostic workups). Indeed, the converse is true. The patient is usually employed and, hence, reluctant to enter the hospital. The physicians are aware of the high costs of hospitalization; and there has chronically been a relative scarcity of hospital beds in the program. The design has been to have two beds per 1,000 subscribers but, in actuality, that goal has not been reached, there currently being 1.7 beds per 1,000 subscribers. This economy of scarcity is obviously a two-edged sword, but thus far, it seems to have influenced the efficiency and the quality of medical care in a positive fashion.

In each of the clinics and hospitals visited, some 10 to 20 patient records were quickly reviewed. The records were selected by the surveyors either from the record room, a physician's office, or the inhospital chart rack.

The records were skimmed in their entirety and then selected histories and physical examinations were reviewed for completeness and appropriate followup of complaints and findings with particular emphasis on diagnostic impression and diagnostic studies performed. It was the distinct impression of both surveyors that the records were of high quality, complete, and reflected a thorough approach. On routine checkups, the laboratory work consisted of complete blood count, urinalysis (microscopic examination of the sediment not routinely done in all clinics), and chest X-ray. Papanicolau smears are routinely performed and electrocardiograms are done on all males over age 40 years. It should be emphasized that, although all physicians interviewed considered routine laboratory work to consist of the same things, there is no explicit policy in this or any other facet of medical care. The individual physician has wide latitude in theory, but usually conforms to the standards of the group in actual practice.

One criticism which might be raised is that some patients come to the clinic with frequent minor illnesses over a 4- or 5-year period without having a comprehensive history and physical examination. It is the judgment of some medical experts that the best practice is to perform a complete history and physical examination on the first visit of a new patient. There are no hard data to support this judgment.

Education—Every Permanente physician is allowed ½-day per week to devote to continuing his medical education. In Northern California, the organization of this time is left entirely to the individual; indeed, he may forgo the opportunity entirely and supplement his salary by working an extra clinic session. Not so in Southern California, where the educational day is Tuesday. One-half of the physicians go to the unit hospital in the morning to round on their hospitalized patients with a consulting internist. In the afternoon, the remaining half report to the unit hospital to work side-by-side with subspecialists. The subspecialty assignment is rotated on a 3-month schedule. It also seemed that in Los Angeles there was a closer association with the medical schools than in the San Francisco area. The chairman of the Southern California Group was actively engaged in developing academic relationships, both by encouraging faculty appointments for his staff and developing reciprocal ties between the medical schools and the Permanente Clinics. The geography of the two areas may well play a partial role in this apparent difference.

Availability of Care—The subscriber has access to medical services around the clock. The basic route of access is the telephone, which during off-hours leads either to a house call or, in selected areas, an emergency ward visit. In the North, an on-call physician both screens the telephone calls and makes the home visits whereas in the South, a screening physician handles the calls centrally and assigns the house visits. The relative merits of these two systems have not been analyzed.

During the work day, the larger facilities have drop-in clinics and emergency wards for nonappointment consumer access. The smaller units have a limited number of blocked-out appointments per physician which are used to process acutely ill patients. In the Northern California area, the drop-in clinics are staffed partially by part-time physicians, whereas in the South, the permanent staff carries the full responsibility. Again, the relative merits of these two organizational patterns have not been analyzed for either consumer satisfaction or relative quality of care.

Delivery System—Although formal organization is discussed elsewhere, the surveyors felt compelled to comment on the very traditional manner in which the delivery system is organized. There was no evidence of innovation in this regard and, in particular, no economies in the use of health manpower. In general, the staffing ratio of physicians to nurses (RN and LPN) was 2 : 1. In one of the largest clinics, the physician could choose to use one or two examining rooms, and some physicians had to wait while patients were being prepared for examination. In some clinics, the primary function of the nurse appeared to be the handling of the physicians' telephone calls rather than the practice of their professional skills. The list of inefficiencies in the delivery system could be extended without difficulty. These comments are reported simply to highlight an area in which large returns could be obtained from creative innovation.

Summary—Although the survey was constrained both by time and experimental design, it was the strong impression that the quality of medical care delivered by the California Permanente Medical Groups is equivalent if not superior, to that available in most communities.

The Extent and Nature of Economies in the Kaiser Foundation Medical Care Program

A major conclusion of the study group is that the Kaiser Foundation Medical Care Program has been able to achieve significant economies in the use of scarce resources and in the medical expenses of its subscribers.

Compared to the California averages, Kaiser had significantly fewer hospital beds and physicians per member served; and for roughly comparable medical services, Kaiser expenses per member are 35–45 percent less than the expenses of the average Californian. Not all of this difference represents a true economy of Kaiser. First, Kaiser members obtain some of the medical care outside of the Kaiser Plan, thus reducing Kaiser expense per member. Second, indigents and old persons are underrepresented in Kaiser compared to the State's population. Still, after making allowances for these factors, it appears that the cost to the average person who obtains medical care through Kaiser is 20–30 percent less than it would be if he obtained it outside.

A comparison of the time trends of expenses for Kaiser members and for the general U.S. population reveals a strikingly slower rate of increase for Kaiser members. Between 1960 and 1965 total expenses per member for the services provided by Kaiser increased by 19 percent.[2] During the same period, national per capita private consumer expenditures for comparable medical services increased by 44 percent. This is noteworthy on two counts: (1) It provides additional evidence that Kaiser is able to achieve sizable economies compared to the normal methods of providing medical care (since trend figures eliminate many of the aspects of noncomparability between Kaiser and the general population); (2) it indicates that changes in the prevalent methods of dispensing medical care have the potential of significantly slowing the rise in medical care expenses.

The foregoing discussion raises the question of what factors account for the relative economy of Kaiser. The answer is somewhat surprising in view of the generalizations usually made about the efficiency of group practice.

Although grouping the physicians together under one organization, as well as the integration of facilities in single locations, undoubtedly permit Kaiser to achieve some savings in physicians' time, capital investment, central administration, and purchasing, savings in these areas did not appear to account for a major share of total savings. Neither did the study group find evidence of major innovations in the practice of medicine: Kaiser physicians use standard medical practices and procedures during their contacts with patients, and there does not appear to be unusual substitution of auxiliary personnel for physicians.

The major source of economy within Kaiser appears to be good control over what medical care is provided and where it is provided. This source of economy is most apparent in hospital care, with the age-adjusted days of hospital care per year for Kaiser members being only 70 percent of the State's per capita average.

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[2] The magnitude of the rise in expenses during this particular period may be somewhat smaller than during some other 5-year periods, but it is indicative of Kaiser's long-term experience.

Prepayment and comprehensive care appear to be major keys to Kaiser's ability to control medical care utilization. Prepayment permits a contract arrangement that eliminates incentive for physicians to provide unnecessary medical procedures, and inclusion of outpatient care in the Kaiser benefit package eliminates members' financial incentives to undergo unnecessary hospitalization.

Economy in the provision of medical care does not flow automatically from organizing physicians into groups, but requires management controls and incentives that promote this objective. Within Kaiser, economy is achieved through energetic application of budgeting as a cost control mechanism and through a contract arrangement that makes the costs of providing medical care a constant concern of the management of the medical groups.

A further difference between Kaiser and the general medical care system, although not precisely a relative economy of Kaiser, is noteworthy. The community hospital system is largely dependent upon charitable contributions and government funds for modernization and expansion. Funds available through these sources are limited, with the result that obtaining capital funds is a major concern of hospital administrators and trustees. In contrast, Kaiser has been able to implement a continuing program of rapid expansion of hospital facilities without government or significant philanthropic funds. Between 1960 and 1965 the net book value of the fixed assets of Kaiser hospitals rose by $37 million, representing an increase of more than 100 percent. This expansion program was financed almost entirely by a combination of long-term borrowing and retained income from operations.

Dues income from its membership provides the Kaiser Foundation Medical Care Program first of all with a continuing, predictable source of internally generated capital funds but, more importantly, with a solid financial basis for obtaining commercial loans. As a result, Kaiser has been able to largely avoid the capital funds squeeze that confronts most community hospitals.

A Comparison of Kaiser and California in 1965

Table I presents statistics on Kaiser operations within California and comparable statistics for the State of California as a whole.[8] More detailed

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[8] Detailed notes for table I are presented at the end of this section.

TABLE I.—*Comparative statistics for Kaiser and California—1965* [1]

Item	Kaiser		California	Ratio of Kaiser to California	
	Northern California	Southern California		North	South
1 Hospital beds per 1,000....	1.73	1.66	3.39	0.51	0.49
1a Age adjusted.............	1.99	....	3.39	.59	....
2 Hospital days per 1,000....	532	520	891	.60	.58
2a Age adjusted	612	....	891	.69	....
3 Average daily cost of hospitalization..........	$56.06	....	$63.48	.88	....
4 Average length of stay.....	6.6	6.0	6.5	1.02	.92
5 Annual hospital cost:					
Per person	$29.62	....	$56.06	.53	....
5a Age adjusted............	$34.30	....	$56.06	.61	....
6 Physicians per 1,000.......	.925	.906	1.26	.73	.72
7 Physician visits per person.	4.63	....	[2] 4.91	.94	....
8 Per capita cost of physicians services..........	$44.32	....	$67	.66	....
			$88	.50	....
9 Other related expenses per capita.................	$7.69	....	$8.76	.88	....
10 Total per capita expenses..	$81.83	$83.87	131.82	.62	.64
			152.82	.54	.55

[1] Detailed notes on table I are presented at the end of this section.

[2] Western United States: July 1963–June 1964.

figures were available to us for the northern California region of Kaiser than for the southern California region, but those data available for both the northern and southern regions indicate that experience is quite similar in both regions.

Any attempt to make the type of comparisons presented here is fraught with obvious difficulties. The demographic, social, and economic characteristics of the Kaiser and the total California populations are clearly different. Moreover, the quality and quantity of the medical care received by the two groups is by no means identical. On this latter score, however, it was the opinion of the study group that the medical care received by Kaiser members was of high quality. Age-adjusted figures are presented to eliminate one source of bias in the comparison, but adjustment for differences in socioeconomic status was not possible. No allowance was made for medical care received for Kaiser members outside the Kaiser Plan. Accurate evidence on the extent of care obtained outside the Plan is not available. A study performed on a small sample of Kaiser families in 1958 found that they obtained about 16 percent of their medical care (including free care provided at the employer's or the public's expense) outside of the plan.[4]

Even admitting to the various aspects of noncomparability of data, it is difficult to believe that the differences shown in table I are not at least partially the result of the different manner in which Kaiser members and the general population receive their medical care. In terms of per capita cost and resource requirements, Kaiser is consistently and significantly below California.

The most striking relative economy of Kaiser is in its requirements for hospital beds and its per member cost of hospitalization. On an age-adjusted basis, Kaiser required only 59 percent as many hospital beds per person as did the State of California.[5] Similarly, Kaiser's per person cost for providing hospital care on an age-adjusted basis was only 61 percent of the statewide cost.

Lower admission rates are the primary source of Kaiser's relative economy in the hospital area. The average Kaiser member (in northern California) spent only 69 percent as many days in the hospital as did the average Californian (on an age-adjusted basis), and since Kaiser's average length of stay exceeded the State's, Kaiser savings in hospital use was entirely the result of lower admission rates.[6]

Fewer days of hospital care per member explain three-fourths of the savings of Kaiser relative to the State with respect to the number of hospital beds required per person. Higher occupancy rates in Kaiser hospitals account for the other one-fourth of the savings in beds. In the case of annual per person cost of hospital care, lower hospitalization rates again explain three-fourths of Kaiser's relative savings—lower per diem costs accounting for the other one-fourth of the savings.

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[4] Josephine Williams, et al., *Family Medical Care Under Three Types of Health Insurance,* a report for the Foundation on Employee Health, Medical Care and Welfare, Inc., done by the School of Public Health and Administrative Medicine of Columbia University, Copyright 1962. Members of the 693 Kaiser families studied by Williams spent 12.4 percent of their total days of short-term hospital care in 1958 in non-Kaiser hospitals. Twenty-seven percent of physician visits were to non-Kaiser physicians, but these include a large number of visits by men to industrial medical departments and care obtained by children from doctors and nurses in schools or camps. This latter type of care is certainly much less expensive than the normal physician visit. If free care visits are weighted equal to one-third of a normal physician visit, the percentage of total physician visits made by family members outside of Kaiser is 19 percent. Averaging the figures for non-Kaiser hospital care and physician visits (implying equal expense for the two types of care) gives the result that these families obtained about 16 percent of their care outside of the Kaiser Plan.

[5] On the basis of data available to us, age-adjusted figures could be calculated only for Kaiser northern California region. However, the memberships of the northern and southern California regions have very similar age distributions; so the figures presented for the northern California region probably closely approximate Kaiser's statewide experience.

[6] Note that the average length of stay is not age-adjusted. If it were, the length of stay at Kaiser would be considerably longer than that for the rest of California.

A reasonable inference of these data is that, compared to the normal medical care system, Kaiser has been more successful in limiting hospitalization to those cases where it is medically justified.

With respect to the number of physicians required and the cost of physician's service per person, the relative savings within Kaiser are again clear. The large majority of physician services are received on an outpatient basis, and age adjustment has almost no effect on the number of outpatient physician visits per Kaiser member; thus age adjustment would not greatly affect the figures presented in rows 6 and 7 of table I. Two estimates are given of the average expenditure in California on physicians' services.[7] Kaiser per member expense is only 50 percent of the higher California figure and 66 percent of the lower California figure.

Adding together the cost of hospitalization, the cost of physicians' services, and other related expenses (see note for row 9 of table I), we obtain comparable figures on the total per capita expenses for medical services received by Kaiser and non-Kaiser persons in California. Depending upon the figure used on non-Kaiser expenditures on physician services, total Kaiser expenses are either 55 or 65 percent of the average in the State. Even if allowances for noncomparability raise the Kaiser figure by as much as 25 percent, it would still be only 70–80 percent as large as the State figure.

Medical Care Expense Trends: 1960–65

Data on the trends of expenses within Kaiser are useful for two reasons:

1. The rapid rate of increase in per person medical care expenses has become a matter of national concern; thus, it is of considerable interest to find out whether or not Kaiser has been successful in holding down the rise in expenses.

2. Comparisons of Kaiser and non-Kaiser time trends are more comparable than comparisons of absolute dollar amounts. Trend figures lessen the importance of many aspects of noncomparability, such as different age distributions, nonavailability of data on outside expenditures of Kaiser members, and socioeconomic differences between

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[7] There is reason to believe that the higher figure is closer to reality (see note for row 8 of table I).

Kaiser members and the general population. To the extent that these aspects of noncomparability have remained constant over time, differences in trends are valid indicators of differences between Kaiser and the general population.

The first part of table II presents 1960 and 1965 data on the major components of expense for all medical care provided Kaiser members, with the exception of outpatient drugs and optical products. The second part of table II provides figures on selected components of U.S. per capita private consumer expenditures for medical care.

During the period under consideration, the simple annual rate of increase in total expense per Kaiser member was about 4 percent. Figures for intervening years (not presented here) show considerable fluctuations in the year-to-year percentage changes, but there is no evidence of an acceleration in the rate of increase toward the end of the period.

Operating expenses for medical and hospital services account for around 85 percent of total expense; thus these two components dominate the trend figures.[8] It is important to note that Kaiser includes in the medical service category many items usually considered part of hospital

TABLE II.—*Per capita medical care costs, 1960 and 1965* [1]

	1960	1965	Percent change
Kaiser (California regions):			
Operating expenses:			
Medical services	$39.22	$47.84	22.0
Hospital services	18.97	21.11	11.3
Other expenses	11.30	13.84	22.5
Total expenses	69.49	82.79	19.1
United States: [2]			
Physicians services	29.77	43.92	47.5
Hospital services	29.64	42.36	42.9
Net cost of insurance per person covered	6.40	8.15	27.3
Total	65.81	94.43	43.5

[1] Detailed notes on table II are presented at the end of this section.

[2] Per capita private consumer expenditures.

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[8] Note that Kaiser includes in the Other Expenses category many items other than costs of central administration. In particular, it includes all property expense items for both the hospitals and medical clinics. See notes for table II.

expenses—for example, the costs of surgery, laboratories, radiology, anesthesiology, interns, and residents. This results in only a slight understatement of the rise in per member hospital expense.

Rising wage rates were the cause of the growth in medical service expense. Personnel costs represent about 90 percent of medical service cost, and the number of physicians and nonphysician personnel per Kaiser member declined slightly during the period.[9] Rising salary costs thus clearly caused the rise in medical service cost, a rise which would have been even greater had not Kaiser been able to reduce the personnel required per member during the period.

On a trend basis, the Kaiser Medical Services category and the U.S. Physician Services category are roughly comparable; thus table II indicates that medical service expenses have grown strikingly faster for the general population than for Kaiser members. This could be due either to a more rapid rise in the productivity of Kaiser medical personnel in dispensing medical services or to a less rapid growth in the use of medical services by Kaiser members. During this period there were no major changes in the methods of dispensing medical care within Kaiser; thus differential productivity trends do not appear to account for much of the difference in expense trends.

On the other hand, there is evidence that Kaiser has been relatively successful in reducing member requirements for medical personnel services—at least in the hospital area. This shows up clearly in the comparative analysis of trends of hospital expense in Kaiser and the United States presented in table III.[10]

The important point made by the table is that although Kaiser's cost per day of hospital care increased almost as fast in the Nation as a whole, its annual hospital expense per person increased only about one-third as fast as the national average. Kaiser was not able to do much about the rise in cost per unit of service, but it was able to reduce the number of units required per person—in contrast to the national experience of a rise in the number of hospital days per person. Differences in the trends of admission rates explain the majority of the difference be-

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[9] The majority of nonphysician personnel are employed in providing medical services.

[10] The figures in table III are not directly comparable with those in table II. The Kaiser Hospital figures in table III include the appropriate medical service cost, and the figures for U.S. hospital expense per person include some expense borne by State and local governments. (The inclusion of medical service costs raises the Kaiser overall increase in per member hospital costs in the northern region between 1960 and 1965 from 14.5 to 15.4 percent.)

TABLE III.—*Trends in per person hospital expenses*[1]

	Kaiser (Northern California region)			United States		
	1960	1965	Percent change	1960	1965	Percent change
Average daily expense.....	$42. 79	$56. 06	−31	$32. 23	$44. 48	+38
Annual admissions per 1,000.................	88	80	−9. 1	128. 9	137. 9	+7. 0
Average length of stay.....	6. 86	6. 65	−3. 1	7. 6	7. 8	+2. 6
Annual patient days per 1,000.................	604	532	−11. 9	978	1, 061	+8. 5
Annual hospital expense per person................	$25. 85	$29. 82	+15. 4	$31. 52	$47. 19	+49. 7

[1] Detailed notes for table III are presented at the end of this section.

tween Kaiser and the United States in the trend of hospital expenses. If admission rates in Kaiser had followed the national trend during 1960–65, Kaiser Hospital expenses per person would have increased about 35 percent, or two-thirds of the national percentage increase.[11]

Shifting age distribution of the Kaiser population explains only part of the decrease in hospital admission during the period. An internal Kaiser analysis shows that this factor accounted for only 16 percent of the decrease in Kaiser hospial utilization between 1957 and 1966. Although the declining birth rate accounted for an additional part of the decrease in admissions within Kaiser, birth rates declined even more rapidly within the general population; thus this factor does not contribute to explaining the differential trends in admission rates.

A reasonable conclusion to draw from these data and the evidence that the quality of care is good is that the Kaiser system has been relatively successful in restricting medical services in general, and hospital care in particular, to medically justified situations. It would appear that as medical technology and accepted practice has changed, Kaiser has been able to shift more care to an outpatient basis and reduce lengths of hospital stay for many types of illness. This has resulted in a significant savings in hospital expense per person. It also seems likely that the changes explain at least part of Kaiser's reduction in the number of medical personnel required per member.

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[11] The discussion in this paragraph is directly relevant to a comparison of Kaiser and California Hospital trends, since California experience during this period was remarkably parallel to that of the United States as a whole. Percentage changes in the California figures for 1960–65 were: Average daily expense, +37.1 percent; annual admissions per 1,000, +11.4 percent; average length of stay, −2.8 percent; annual patient days per 1,000, +8.3 percent; annual hospital expense per person, +48.5 percent.

The Sources of Economy Within Kaiser

What explains the sizeable savings that Kaiser has been able to achieve in the provision of medical care? There is no simple answer to this question. Economy within Kaiser appears to derive from a number of sources; but before discussing these sources in detail; it is important to eliminate several possible explanations that do not appear valid.

One of the most distinctive features of Kaiser is the relatively low use of medical services (particularly hospital services) by its members. Questions that immediately come to mind are whether this feature is indicative of poor medical care, denial of services desired by the members, or relatively good health of the members. In fact, the low use of services does not appear to indicate any of these. First, the study group found the quality of medical care to be high. Second, the rapid growth in Kaiser membership, coupled with a Kaiser's mandatory policy of giving all group members a choice of an alternative health insurance plan, indicates a high level of consumer satisfaction—a state of affairs that would not exist if members were often denied medical services they desired. Third, there is no indication that unusually good health of Kaiser members is the reason for the low use of medical services: The vast majority of Kaiser members are enrolled through employee groups whose members are given dual choice of health plans, and analyses by Kaiser reveal no significant bias in the medical-risk characteristics of those choosing Kaiser as opposed to the competing plan.[12] Nor does underrepresentation of the indigent in the Kaiser population contribute to explaining the relatively low use of medical services by the members. Even though indigents are less healthy than average, they have up until now received less than the average amount of medical care in the State as a whole, and may reduce utilization figures for the non-Kaiser population more than for the Kaiser subscribers.

While the explanations that would eliminate much of the significance of the savings within Kaiser do not seem to be valid, neither do explanations that suggest major cost-saving innovations in the practice of medicine: Kaiser physicians use standard medical practices and procedures in their contracts with patients, and auxiliary personnel are not substituted for physicians to any unusual extent.[13] Neither do economies of scale associated with Kaiser's large group practices appear to be a major explanatory factor. Although Kaiser undoubtedly achieves economies in investment, purchasing, and administration, these areas account for only a small fraction of the total cost of providing comprehensive medical care.

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[12] A. Yedidia. "Dual Choice Programs," *American Journal of Public Health*, November 1959.

If this is the case, what are the sources of economy? In the final analysis, it is the individual physician who has the most influence on the cost of medical care. It is he who determines how much and what kind of medical services the members receive. Kaiser has been able to achieve substantial savings because it has been able to get individual physicians to control the costs of providing medical care. The Kaiser physicians operate in a setting which makes them constantly aware of the costs associated with providing medical services and which exerts pressure on them to avoid waste. The way in which this setting has been achieved is best explained by describing the relationship between the management of the Kaiser Foundation Health Plan and the several Medical Groups.

As discussed earlier, the Kaiser medical care program is not carried out by a single organization but by a number of distinct, related organizations. Chart No. 1, reproduced from the 1965 Kaiser Annual Report, illustrates the principal relationships involved in conducting the medical care program. Although Kaiser Foundation Hospitals is legally a separate corporation, it has the same board of directors as Kaiser Foundation Health Plan, and for all practical purposes, is controlled by the management of the Health Plan. On the other hand, the separation between the Medical Groups and the Health Plan exists in both legal and practical terms. The Medical Groups are partnerships of physicians and are self-governing. The Medical Groups quite jealously guard what they consider to be their professional prerogatives; thus each individual Medical Group sets its own standards of practice and determines its own method of operation. Also, the Medical Groups have the right to determine when the Health Plan can enroll new individual and group members.

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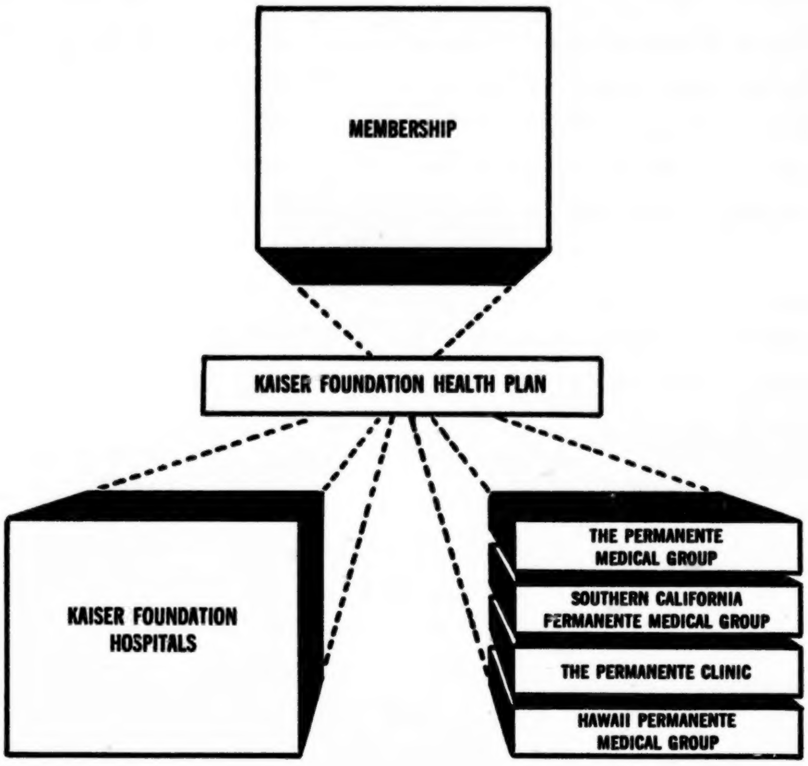
[13] A limited exception is the experimental multiphasic health checkup given to Kaiser members in the San Francisco Bay area. At the present time, however, the multiphasic checkup is a minor and somewhat isolated part of the Kaiser program. Since it provides many more tests than are normally involved in a regular physical, and since it appears to have increased the demand for health checkups, it seems doubtful that Kaiser has realized any significant savings from the program.

CHART I


MEMBERSHIP
KAISER FOUNDATION HEALTH PLAN
KAISER FOUNDATION HOSPITALS
THE PERMANENTE MEDICAL GROUP
SOUTHERN CALIFORNIA PERMANENTE MEDICAL GROUP
THE PERMANENTE CLINIC
HAWAII PERMANENTE MEDICAL GROUP

This chart illustrates the principal relationships involved in conducting the Program in its four Regions—

- Northern California: San Francisco Bay Area and Sacramento
- Southern California: Greater Los Angeles Area
- Oregon: Portland, Oregon—Vancouver, Washington and vicinity
- Hawaii: Island of Oahu.

Kaiser Foundation Health Plan, Inc., a California nonprofit corporation, undertakes to arrange for necessary hospital and professional care for subscribers and their dependents—the Health Plan members. In the Oregon Region this function is performed by a subsidiary, Kaiser Foundation Health Plan of Oregon, a Washington nonprofit corporation.

The Health Plan meets its commitment to arrange for health care services principally through two types of contracts—

- A MEDICAL SERVICE AGREEMENT

  In each Region one of four independent Permanente Medical Groups accepts responsibility for professional care of Health Plan members in the Region. Three of the Medical Groups are organized as partnerships. The fourth, in Hawaii, is an unincorporated association.

- A HOSPITAL SERVICE AGREEMENT

  By a complementary agreement Kaiser Foundation Hospitals, a California nonprofit and charitable corporation, accepts Regional responsibility for necessary hospital services and facilities.

Because of their nonprofit and public service character, Kaiser Foundation Hospitals, Kaiser Foundation Health Plan, Inc., and Kaiser Foundation Health Plan of Oregon all are exempt from Federal income tax.

In each Region one of four Permanente Services corporations performs centralized business and administrative services for the organizations cooperating in the Medical Care Program, and also operates prescription pharmacies at non-hospital locations. All Permanente Services capital stock is owned in equal shares by Kaiser Foundation Hospitals and Kaiser Foundation Health Plan.

In a sense, the Medical Groups represent the interests of the medical profession. In the same sense, Kaiser Foundation Health Plan represents the ideals of Henry Kaiser. His philosophy and the men he gathered together to manage these programs are represented in the management of the Kaiser Health Plan. Among management groups in the medical care field, that of the Health Plan appears to be unique. Because of Henry Kaiser's sponsorship, the Health Plan has been able to draw on the talents available throughout Kaiser Industries, and thus the management is of unusually high caliber. Moreover, it has been imbued with the philosophy that the task of providing medical care is susceptible to the management techniques employed in solving other production problems.

The philosophy exemplified in the Health Plan is that the role of management is to find the best arrangement of people and facilities to produce the desired product. In this case the desired product is high quality medical care, and the best arrangement is the one which allows this product to be produced at lowest cost. Because of the traditions and attitudes in the medical profession, radical change in the methods of dispensing medical care is not easily achieved, and the Health Plan management has certainly not been able to exploit all of the potential economies in the provision of medical care. Still, the accomplishments of Health Plan management are impressive.

The very existence of the Kaiser medical care program is attributable to the ability of central management to find an organizational structure that would allow central control over the costs and general shape of the medical care program and, at the same time, allow sufficient autonomy to the Medical Groups to make them professionally attractive to physicians. Autonomy was achieved by allowing the physicians to form independent partnerships. Control was achived through the ground rules for the negotiations over the annual contract between the Health Plan and each individual Medical Group.

The negotiated contract provides that the Health Plan will pay the medical group an essentially fixed amount per member for all of the physicians' services provided by the Medical Group during the year. The negotiation process, however, is not a pure bargaining one. Rather, the basis for determining the size of the contract payment is a detailed budget prepared by the Medical Group. Individual budgets are prepared by line supervisors, subject to review at various levels, and finally consolidated into the overall budget. Detailed planning figures and forecasts are provided the budget preparation centers in order to make the budget as accurate as possible.

The budget prepared by the Medical Gruop is not sacrosanct. As part of the negotiation process, items are subject to review by the Health Plan, thus giving the Health Plan some degree of control over decisions of the Medical Group. Equally important, the contract arrangement is such that the physician-management of the Medical Groups must operate according to sound business principles. After the annual contract is negotiated, a Medical Group has, essentially, a fixed amount of income per member served. Any excess of costs over the budgeted amount directly reduces the income of the individual physicians in the Medical Group. Conversely, any savings below the budgeted amount add to physicians' income. Therefore, in order to maintain the stability of their staff and to be able to attract good personnel, the management of the Medical Groups have strong incentives to keep their costs equal to or below the budgeted amount.

In the California regions, the negotiated contract also contains a feature, termed a "contingency contractual payment," or CCP, that provides the Medical Groups with incentives to avoid lowering their costs by transferring expenses to Kaiser Hospitals. The CCP works in the following manner: After the budgets of the Medical Groups and the Kaiser Hospitals are prepared, an amount equal to about 5 percent of total budgeted expense is added to the combined budget. The contract payment agreements of the Health Plan with the Medical Groups and Kaiser Hospitals include this 5 percent CCP. The CCP is always divided equally between the Kaiser Hospitals/Health Plan and the medical organizations, but the CCP is reduced to the extent that the hospitals run over their budgeted costs, and is increased to the extent that hospital costs are under the budget. If Medical Group costs exceed their budgeted estimate, the difference is taken only from the physician's share of the CCP, while the size of the overall CCP remains undiminished. Thus, in order to insure the maintenance of physician income and the maximum incentive payment, the Medical Groups and the Hospitals must cooperate in keeping their costs low.

The Medical Group share of the CCP is divided equally among all partners of the Group; thus any overrun of the budget either by the Medical Group or the Hospitals reduces the income of the partnership physicians. Conversely, the partners can increase their income by keeping their expenses below their budgeted costs—since with the exception of the CCP, payments from the Health Plan to the Medical Group are fixed at the beginning of the year and are not changed if expenses fall below budgeted figures.

The budgeting process forces the Medical Group to carefully calculate the costs of doing business, and the contract arrangement creates strong incentives for them to live within their budget. Financial operating statements prepared monthly show how each department is doing in comparison to its budget; thus the managements of the Medical Groups can pinpoint responsibility for any deviations from the budget. Management has the incentive and the ability to control costs, with the result that a general awareness of the cost of providing medical care is apparent throughout the Medical Groups. This awareness is translated into good control over the medical services dispensed to members.

As indicated in the comparative analysis of Kaiser and general California medical care costs, a major source of Kaiser's relative economy appears to be better control over utilization of medical services by its members. The discussion in this section should make it clear that this is not a matter of mere happenstance but the result of management efforts. Although the individual physician determines what medical services will be provided to a member, he does not operate in isolation but within the framework of a system that exerts constant pressure upon him to avoid unnecessary expense in the provision of medical care.

Capital Financing in the Kaiser System

Kaiser has been able to implement a continuing program of rapid expansion of hospital and clinic facilities without use of government or significant philanthropic funds. This is in marked contrast to the community hospital system which is largely dependent upon charitable contributions and government support for construction, modernization, and expansion. Scarcity of funds from these sources and the need to satisfy the desires of philanthropic givers often lead community hospitals to defer capital investments that would lower the overall costs of providing hospital care. Since Kaiser has a financial base that permits it to obtain capital funds, it is able to make investment decisions on the basis of their economic merit and can avoid the noneconomic constraints prevalent in the community hospital system.

The magnitude of Kaiser's ability to generate capital funds is well illustrated by the income statements presented in the 1965 Kaiser Annual Report. In that year the Kaiser Hospitals' gross revenue equaled $54 million and net income from operations plus depreciation equaled $8.7

million; thus "cash flow" was equal to 16 percent of gross revenue. In addition, Kaiser Hospitals had a net increase in their outstanding long-term debt of $6.9 million. In total, then, Kaiser Hospitals had available to them a sum of money for expansion purposes equal to 29 percent of 1 year's gross revenues.

To some extent, the figures presented in the previous paragraph may overstate the advantage of Kaiser Hospitals relative to community hospitals in their ability to generate capital funds. First, Kaiser Hospitals must provide space and equipment for Medical Group clinics that are colocated with the hospitals; thus a part of the available funds must be spent for outpatient medical facilities. Moreover, Kaiser Hospitals can draw on the entire revenue base of the Kaiser Foundation Medical Care Program, a revenue base significantly larger than that available to the community hospital. Compared to the total revenue of the Kaiser Plan in 1965, the cash flow of Kaiser Hospitals alone equaled only about 8 percent. Cash flow plus net borrowing equaled 15 percent of total Health Plan revenue. Even with these qualifications, it is clear that Kaiser enjoys a distinct advantage over the average community hospital in obtaining funds for expansion.

The fundamental basis for Kaiser's ability to obtain capital financing is the predictable and adequate revenue source provided by its members. Kaiser must compete for the health and welfare dollars with other organizations offering less comprehensive (and thus intrinsically less expensive) medical care programs. The necessity of remaining competitive in this situation restricts Kaiser's freedom in setting the level of membership dues, but Kaiser's sizable economies have consistently permitted it to price its program at a level that would generate substantial net income. Kaiser's ability to generate net income provides commercial lenders the assurance they require in order to make long-term loans on favorable terms. Thus, by providing comprehensive medical care in an efficient manner on a prepaid basis, Kaiser has been able to largely avoid the capital funds problem that confronts most community hospitals.

Conclusions

The Kaiser Foundation Medical Care Program provides comprehensive services to more than a million and a half members drawn primarily from the working population. These services are provided at significant savings by comparison with the cost for equivalent services purchased in the surrounding communities and the country at large.

The quality of care provided by Kaiser is equivalent, if not superior, to that available in most communities. Permanente physicians use standard medical practices and procedures. Patient satisfaction is indicated by the overall flow of patients into Kaiser from competing health plans under the dual choice available to all Kaiser subscribers.

Kaiser Hospitals are also operated in a standard fashion. The per diem costs of Kaiser Hospitals are only slightly lower than non-Kaiser hospitals.

The cost savings of Kaiser relative to the usual delivery system are manifested both in lower absolute expenses per person for care and in lower trend rates of increase in expense. These economies appear due almost entirely to the elimination of unnecessary health care, particularly hospitalization. This has been brought about principally by decreasing admission rates for specific diagnoses.

The Kaiser Foundation Medical Care Program has achieved real economies, while maintaining high quality of care, through a delicate interplay of managerial and professional interests. This has resulted from structuring economic arrangements so that both professional and managerial partners have a direct economic stake in the successful and efficient operation of the overall program. As a result, there has been created a cost consciousness among the health professionals and a health care consciousness among the administrators which enables them to work toward a common goal without either sacrificing or overemphasizing their own points of view.

Notes for Table I

General Note—Kaiser figures are from operating data relating to the Kaiser Foundation Medical Care Program.

Row 1—The estimate of California beds per thousand population is based on the total number of non-Federal, short-term, general and other special beds in California (*Hospitals Guide Issue,* Aug. 1, 1966, pp. 464–465) and the population estimate for July 1, 1965 (*California Statistical Abstract—1966,* p. 10).

Row 1a—The age-adjusted figures presented in this and other rows show how Kaiser's hospital experience would have been modified if its 1965 membership had the same age distribution as that of the entire State. The effect of age adjustment is to raise the annual hospital days per member by 15 percent. It is assumed that the number of beds required per thousand members would also be increased by 15 percent.

Row 2—Kaiser northern California region figures include patient days spent by Kaiser members in the Kaiser Vallejo Rehabilitation Center Hospital. Excluding this hospital would reduce patient days per thousand to 520 for the northern region. Although it would be most appropriate to exclude this hospital, it is included because the data for age adjustment and the average daily cost of hospitalization include this hospital.

California hospital days per thousand were calculated by multiplying the average daily census in all non-Federal, short-term, general, and other special hospitals by 365 (*Hospitals,* op cit., p. 460).

Row 2a—See note for 1a.

Row 3—The California daily cost of hospitalization is the average daily expense per patient day in all California voluntary nonprofit, short-term hospitals. Voluntary hospitals were chosen because they appear to provide care most comparable with that provided in Kaiser Hospitals (ibid., pp. 464–465).

Row 4—Figure for Kaiser northern California region includes the Vallejo Rehabilitation Center Hospital. Excluding stays in that hospital would reduce the average length of stay to 6.5 days. The California figure is for average length of stay in voluntary, short-term hospitals (ibid).

Row 5—Row 2 multiplied by row 3.

Row 5a—Row 2a multiplied by row 3.

Row 6—The figures for Kaiser include part-time physicians on a proportional basis. Excluded are interns, residents, non-MD personnel, house-call duty, physicians engaged in rehabilitation at the Kaiser Foundation Rehabilitation Center, and administrative physicians.

The California physician number includes all physicians in private practice except psychiatrists plus 14.6 percent of physicians not in private practice. This latter percentage is the national percentage of physicians-not-in-private-practice represented by full-time hospital staff other than interns and residents. (Source: C. N. Theodore and G. E. Sutter, *Distribution of Physicians, Hospitals, and Hospital Beds in the U.S.,* American Medical Association, Chicago, 1966.)

Row 7—The figures presented in this row do not represent the actual number of physician contacts per person. First of all, they exclude in-patient physician visits (and telephone consultations), and secondly, they include visits to doctor's offices and clinics where services were provided by personnel other than physicians. In the case of Kaiser, only 80 percent of the reported number of visits actually involved contact with a physician. Similar data are not available for the experience of persons outside Kaiser.

The figures in this row may be the least comparable of all figures presented in table I. First, the non-Kaiser figure is for the entire western region of the United States (Montana, Idaho, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Alaska, Washington, Oregon, California, and Hawaii). Second, the ratio of doctor contacts to total office and clinic visits may differ between Kaiser and non-Kaiser. Third, the figure for the Western United States may represent a considerable understatement. This figure was obtained from the *Volume of Physician Visits—July 1963–June 1964*. National Center for Health Statistics, U.S. Department of Health, Education, and Welfare, Series 10, No. 18. To check on the reliability of the interview technique used to obtain data on physician visits, the National Center for Health Statistics conducted two record-check studies among members of group health plans where the actual number of physician visits was known. It was found that these people reported only about two-thirds of the physician visits which had actually occurred. Although it is uncertain that the general population underreported to this extent, the record-check studies do raise the significant possibility that the interview survey data seriously understates the true volume of physician visits.

It is important to note, however, that one aspect of incomparability; that is, differences in the age distributions in Kaiser and non-Kaiser populations, is unimportant in this particular case. Applying Kaiser's age distribution to the age-specific rates presented in the *Volume of Physician Visits* yields a total of physician visits that differs by only 1 percent from the figure given for the Western United States. A similar calculation performed on Kaiser data for an earlier year also showed little effect from adjusting Kaiser's age distribution to conform to California's.

Row 8—Kaiser figure excludes the cost of ancillary services performed on an inpatient basis. The two figures given for California average expenditures on physician services are derived from national expenditure figures (Ruth Hanft, "National Health Expenditures, 1950–65," *Social Security Bulletin,* February 1967, vol. 30, No. 2, p. 12). The figure of $67 is obtained by multiplying the average per capita national expenditure in 1965 of $43.92 by the factor 1.53. The factor 1.53 was the ratio of California per capita expenditures for physician services to that of the Nation in 1960 (Louis S. Reed, *Per Capita Expenditures for Hospital Care and for the Services of Physicians and Dentists, by Region and State,* U.S. Department of Health, Education, and Welfare, Social Security Administration, Division of Research and Statistics, Note No. 18, 1964).

The figures used by Reed and Hanft are based on gross receipts of physicians in private practice reported to the Internal Revenue Service. To the extent that physicians do not report all of their income, the figures are underestimates. Figures based on interviews with consumers show considerably higher expenditures. A survey conducted during the last half of 1962 yielded an estimate of per capita expenditure for physician services that was 31 percent higher than the comparable figure reported by Hanft (*Medical Care, Health Status, and Family Income in the United States,* National Center for Health Statistics, Series 10, No. 9, May 1964). The $88 figure given in table I is 31 percent greater than the figure based on income reported by physicians, reflecting the results of the interview survey. There is some evidence of underreporting even in the interview survey (see note for row 7); so even the $88 figure may be an underestimate.

An opposite bias of the figures is due to the inclusion of all psychiatrists' income in the California figure, even though Kaiser provides only limited psychiatric service. Approximately 4 percent of private physicians in California are psychiatrists.

Row 9—In the case of Kaiser, the figure is a residual. It equals the total revenue received per Kaiser member per year minus per person hospital costs (row 5), cost of physicians' services (row 7), and revenues in excess of expenses (net income). The total revenue figure includes supplemental payments for services not fully covered by the benefit package and the net income derived from pharmacy and optical dispensing operations. The residual includes a number of items, including some property expense, the cost of regional administration cost, and Kaiser's expense in providing medical and hospital care to Kaiser members in facilities not operated by Kaiser. It also includes all expenses of operating the Kaiser Foundation Health Plan (as distinct from the Kaiser Foundation Hospitals and the Permanente Medical Groups).

The figure for all California is not directly comparable to the one for Kaiser. It represents only the estimated net retention of health insurance premiums by insurance companies in California divided by the number of Californians with some degree of hospital insurance protection. The retentions of health insurance organizations represent operating expenses, additions to reserves, and (in the case of private insurance companies) profits.

The figure of $8.76 was obtained in the following way: Figures were obtained for the insurance premiums paid by Californians in 1965 to private insurance companies and to Blue Cross/Blue Shield. The premium figure for private insurance companies included premiums for protection against loss of income. This figure was adjusted downward by 25.6 percent, the national ratio of income-loss premiums to total premiums. (Source: *1966 Source Book of Health Insurance Data,* Health Insurance Institute.)

National ratios of income retention for both private insurance companies and Blue Cross/Blue Shield organizations were applied to the premium figures to obtain the total amount of income retained by California Insurance Organizations. (Source: Louis S. Reed, Private Health Insurance, 1965, *Social Security Bulletin,* November 1966, vol. 29, No. 11, p. 8.) This total figure was divided by the number of Californians with some degree of hospital insurance protection (as reported in the *1966 Source Book of Health Insurance Data*).

Row 10—The sum of rows 5, 7, and 8.

Notes for Table II

Kaiser

The expense categories are defined as follows:

Medical Service—Services to outpatients (clinics, laboratories, radiology, anesthesiology, house calls) and direct medical surgical services to hospital inpatients (surgery, laboratories, radiology, anesthesiology, interns, and residents). Excluded are property, fixed charges, professional and public liability costs, and other items included under "Other expenses."

Hospital Service—Service to patients assigned hospital beds. This includes the cost of inpatient charge drugs, supplemental hospitalization, and dietary operations. It excludes out-of-region and emergency hospitalization, property expense, community service programs, clinical laboratory, radiology, anesthesiology, rental revenue from other entities, and other items included in "Other expenses."

Other Expenses—Health plan administration, property expenses, regional administration, professional and public liability costs, community service program, out-of-region and emergency hospitalization, and other minor items of expense. The property expense item includes charges for depreciation, amortization of loans, property taxes, insurance, interest on long-term debts, outside rentals, and extraordinary maintenance and repair expense. It does not include a sum equal to 4 percent of the gross value of all the physical assets that the Kaiser Health Plan pays the hospitals each year. Also excluded from "Other expenses" is the hospitals' share in the incentive payments that the Kaiser Health Plan divides between the medical groups and the hospital corporation. The 4-percent provision and the incentive payments are essentially expansion funds and not true expenses.

The United States

The categories in this part of the table are taken directly from Ruth F. Hanft, "National Health Expenditures, 1950–65," *Social Security Bulletin,* February 1967, volume 30, No. 2. The figures presented for the net cost of insurance differ from those presented by Hanft in that they give the net cost of insurance per person with some insurance coverage. Figures on the number of people with some insurance coverage were taken from *1966 Source Book of Health Insurance Data,* Health Insurance Institute.

The figures are for per capita private consumer expenditures only; thus they exclude expenses borne by philanthropy and by government. Excluding government probably introduces little bias into the trend during the period under consideration. As Medicare and Medicaid expand, the story will be different.

Notes for Table III

The figures for the northern California region of Kaiser include the Vallejo Rehabilitation Center Hospital.

All figures on the United States refer to hospitalization in non-Federal, short-term, general, and other special hospitals. The data are from *Hospitals Guide Issue,* August 1, 1966. Specific page references are:

Average daily expense: table IV, p. 432.
Admissions per thousand: table VI, p. 432.
Average length of stay: table I, p. 439.
Patient days per thousand: table I, p. 439.
Average daily census times 365 divided by 1965 civilian population estimate as of July 1.
Annual Hospital Expense per Person: Patient days per person times average daily expense.

This description of the Kaiser Foundation Health Plan was made for the Commission by its staff. While material was drawn from Kaiser publications and previous outside studies of the Plan, the major source of information was a week-long visit to Kaiser in February 1967, by the following team:

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All members had extensive discussions with Kaiser officials and Medical Group representatives, and separately made both planned and randomly selected visits to a variety of health care facilities in northern California. In addition, Drs. Kopald and Moxley conducted a similar exercise in southern California.

While the many Kaiser employees who received and helped our visiting team can only be saluted anonymously, we want to at least list here those officials who gave up great amounts of their busy week in response to our requests. We are grateful to them, and we hope this report accurately reflects the operation to which they were obviously very dedicated:

Dr. Morris F. Collen
Dr. Cecil C. Cutting
Mr. Scott Flemming
Dr. Raymond M. Kay
Dr. Clifford H. Keene
Dr. Donovan J. McCune
Mr. Everett Southard
Mr. Howard F. Spalding
Mr. Karl T. Steil
Mr. Arthur Weissman

Appendix V

Health Manpower in 1975— Demand, Supply, and Price

by **Norman H. Jones, Jr.**
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The objective of the study reported here was to estimate the demand for, and the supply and prices of, selected medical services in 1975. The services chosen for study were those of physicians, nurses, dentists, and short-term general hospitals. In general, the estimates present a picture for 1975 which is only moderately different from that of the present. This is partly a result of the basic estimating approach, which used as its starting point the trends of the past 10 years.

The results of the study indicate that much rests on the continued improvement in the productivity of physicians and dentists. In the former case, productivity improvements can be expected to offset pressures for price increases. In the case of dentists, however, productivity increases will play an important part in determining whether or not the expenditure levels for dental services and dentist incomes projected here will be realized. Unless sweeping changes are made in the ways in which hospital services are managed and provided, productivity increases will be small. The result implied here is that prices can be expected to continue to rise rapidly.

In more specific terms, the demand for physicians' services is projected to more than double over the 1965–75 period. The supply of those services, including assumed productivity increases, is projected to increase by 75 percent. Price increases are expected to continue at the pace of the past decade. The demand for nursing services is expected to increase by about 45 percent over the 1965–75 period. On the other hand, on the basis of expected training programs the number of graduate nurses on active duty might be expected to increase by about 30 percent to about 790,000. Recent rates of salary increase, however, seem likely to pull some graduates back into service, slow the withdrawal of others, and lead to recruitment levels higher than estimated, so that by 1975 the gap between supply and demand will probably be small.

Short-term general hospital admissions are projected to increase by 38 percent and the average daily census by 45 percent. Given past trends in patient care and expected wage increases, more than a twofold increase in patient-day costs is projected for 1975. This means that by 1975 average patient-day costs will exceed $100 per day. The demand for dentists is projected to double over the 1965–75 period while the supply of dental services, including increases in dentist productivity, is projected to increase by about 50 percent. The implied price increase, 3 percent per year, is somewhat more rapid than that of the past decade. It seems likely that unless productivity improvements more rapid than those projected here are realized, price increases will hold down the overall demand for dental services.

Introduction

The demand for medical services in the United States has grown at a rapid pace since the end of World War II. In the past decade alone, consumer expenditures for medical care more than doubled while consumer disposable income increased by about 70 percent. This rapid growth has been fueled by technological advance, rising personal income and education levels, and the increasing urbanization of the American population. Another vitally important factor has been the ability to spread the costs of medical services by means of insurance and prepayment schemes. Recently enacted social legislation such as Medicare and Medicaid have added still other dimensions to the demand for medical services.

Manpower inputs to the production of medical services have not kept pace with the demand for service. In the past decade, while consumer expenditures for medical care more than doubled, the number of physicians increased by about 20 percent; the number of nurses increased by about 45 percent; the rates of increase in the numbers of medical aides and technicians appear to have generally approximated the rate of increase of nurses.

So far, the discrepancy between the supply of medical manpower and the demand for medical services has been resolved by: (*a*) The increasing introduction of new technology and new drugs; (*b*) the substantial substitution of lower level medical personnel for higher level medical personnel; (*c*) the growth of queues and rationing, particularly on the part of physicians; and (*d*) significant increases in prices. Many have viewed these responses of the medical system to the rapid growth in demand as unsatisfactory. They see the volume of services that have been provided as inadequate, the distribution of services inequitable, and the burden of their cost excessive. Moreover, in making their cases for changes in the medical system they have tended to project worsening conditions into the future.

The purposes of this paper are threefold; it will:

- Estimate the supply of selected classes of medical manpower (and services) in 1975.
- Estimate the demand for this manpower (and services) in 1975.
- Examine the implications of these projections with respect to the prices of medical manpower (and services) as well as other elements of market control such as queuing and rationing.

Because time and resources for the study have been limited, attention is focused on physicians, nurses, dentists, and short-term general hospital services. Also, reliance has been placed on literature and data that are already available.

The general economic environment that has been assumed for 1975 is summarized in table 1. The general picture of the economy is derived from the National Planning Association economic projections for 1975. These projections suggest that an increase in gross national product (GNP) of 54 percent in constant dollars can be expected from 1965 to 1975. If it is assumed that prices increase at an average rate of 1.8 percent per year (a rate slightly slower than that of the 1955–65 decade), GNP in 1975 in current (1975) prices is expected to total $1,260 billion. The projected increase in GNP in current prices for the 1965–75 decade is 85 percent. This increase is slightly more rapid (13 percentage points) than the rate of growth of GNP in the 1955–65 decade.

Population growth in 1965–75 is projected to be about 13 percent (Bureau of Census Estimate C). The estimated 1975 population by age class is also shown in table 1.

Physicians

A. Introduction

The shortage of physicians and surgeons has attracted much attention in recent years. This problem has been difficult to define. While the number of physicians per capita has declined since the turn of the century, over the past 20 years the growth in the number of physicians has kept

TABLE 1.—*1975 Environment*

A. PROJECTED ECONOMIC ACTIVITY, 1975 (BILLIONS OF DOLLARS)[1]

	1965 prices	1975 prices
Gross national product	1,051	1,260
Personnel income	870	1,057
Disposable income	746	....

B. PROJECTED 1975 POPULATION, BY AGE CLASS[2]

Age class	Thousand	Percent
Under 5	21.2	9.7
5 to 14	39.6	18.0
15 to 24	40.1	18.3
25 to 44	53.1	24.5
45 to 64	43.4	19.8
65 plus	21.2	9.7
Total	219.4	100.0

[1] Gross national product, personal income, disposable income, National Planning Association projections in constant prices. 1975 current prices predicated on an average 1.8 percent per year price increase, 1965–75.

[2] U.S. Department of Commerce, Bureau of the Census, *Population Estimates*, Series P–25.

pace with the growth of the population (see table 2). Despite this, the queues for physician services appear to have grown longer and physicians are confronted with a seemingly increasing problem of rationing their services.

One part of the problem is that people have chosen to spend a large part of their increasing income on medical care. At the same time, the number of doctors in private practice has not kept pace with the overall total growth. This has been compounded by increasing specialization on the part of physicians and the growing managerial responsibilities that have fallen on the doctor in the provision of medical care.

Another contributor to the problem has been the economic behavior of physicians. Physicians enjoy a unique economic position—they are discriminating monopolists who can directly influence the demand for their services. While physician incomes have grown rapidly in the past, physicians do not appear to have exploited their position to maximize incomes in the short run. They have not charged all that the traffic

TABLE 2.—*Physicians in relation to population, selected years, 1950–65*

Year	Population in thousands	Number of physicians	Physicians per 100,000 population
1950	156, 472	232, 697	149
1955	170, 499	255, 211	150
1960	185, 369	274, 834	148
1965	199, 256	305, 115	153

Year	Civilian population in thousands	Physicians in private practice	Physicians per 100,000 population
1950	153, 635	168, 089	109
1955	167, 038	169, 871	102
1960	182, 438	179, 176	98
1965	195, 811	190, 748	97

Source: U.S. Department of Health, Education, and Welfare, Public Health Service Publication No. 1509, *Health Resources Statistics, 1965.*

will bear, but rather appear to have controlled fees and services more so as to maintain their relative income position. Queues and other informal ways of rationing service have been used to control demand rather than price alone.

In a sense, then, the shortage of physicians reflects the fact that at present prices people would generally be willing to buy more physician services than they are presently offered. This is not to deny that there are groups in our society which do not receive what has generally come to be accepted as adequate medical care. Physician services are harder to come by in the low-income and ghetto areas. Hospitals have been forced to rely heavily on residents and foreign-trained staff. The distribution of physician services does appear to have been skewed in the direction of those better able to pay. These problems, however, are in the distribution of physician services rather than in their supply.

In preparing the estimates of the demand for and the supply of physician services in 1975 it has been assumed that the general environment for providing those services will remain the same—that is, that the organization and the provision of physician services will continue to center on the individual practitioner or small, privately organized groupings.

B. Supply of Physicians

On the basis of programmed increases in medical school facilities, the Public Health Service (PHS) has estimated that the number of medical graduates could increase from about 7,900 in 1965 to approximately 9,200 in 1975. The number of new doctors graduating from U.S. medical schools over the 10-year period of 1965–75 has been projected by the PHS to total slightly more than 85,000.

It seems clear, however, that the rates of expansion envisaged in these PHS projections will prove conservative. The mounting pressure to speed up the increase in the number of physicians seems very likely to accelerate the expansion of the numbers of medical school students. Changes in the school programs designed to shorten the time in training have also been experimented with in recent years. Some alternative estimates project as many as 10,500 medical graduates in 1975. This figure is used here in developing the estimate of the number of physicians in 1975.

In addition to graduates from U.S. medical schools, a substantial addition to the U.S. supply of doctors in recent years has come as a result of licensing the graduates of foreign medical schools. This has amounted to as many as 1,600 graduates per year from foreign schools. Should the immigration of doctors continue at this rate over the 10-year period of 1965–75, this source would add another 16,000 doctors to the overall supply. The total number of physicians in 1975, then, is expected to be 360,000. This represents an increase of 18 percent over the 1965 number. (The data are summarized in table 3.)

As noted above, the number of physicians in private practice has been a decling share of the total. In part, this shift has been a function of the increasing specialization of the medical manpower pool. It also reflects the fact, however, that over the past decade or so, research, teaching, and administration have become increasingly attractive relative to private practice. To project on the basis of the longer term trend would probably lead to an understatement of the number of doctors entering private practice in 1975. To estimate the number of doctors in private practice in 1975 two assumptions have been made. One is that the share of doctors in private practice in 1975 will be the same as it was in 1965. The other is that the rate of decline in the share that took place between 1955 and 1965 will continue for the next decade. The results of these two assumptions are shown in table 4.

In summary, by 1975 it is expected that the total number of physicians will be about 360,000, or an increase of 18 percent over the number of

TABLE 3.—*Supply of Physicians—1965–75* [1]

Year	Graduates of U.S. medical and osteopathic schools	Newly licensed foreign graduates	Deaths among those in the profession	Number of physicians (year end)
1966[2]	7,965	1,600	4,000	....
1967[2]	8,010	1,600	4,100	....
1968[2]	8,065	1,600	4,200	....
1969[2]	8,190	1,600	4,300	....
1970[2]	8,400	1,600	4,400	327,900
1971	8,800	1,600	4,500	....
1972	9,200	1,600	4,600	....
1973	9,600	1,600	4,700	....
1974	10,000	1,600	4,800	....
1975	10,500	1,600	4,900	360,500

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[1] Figures are based on the number of graduates of U.S. medical schools and licensed foreign graduates.

[2] U.S. Public Health Service, *Health Manpower Source Book, Manpower in the 1960's*, Licensing of Foreign Graduates and Deaths Among the Profession, sec. 18.

TABLE 4.—*Physicians in private practice relative to total physicians, selected years, 1950–75*

Year	Total physicians	Physicians in private practice	Percentage
1950	232,697	168,089	72.2
1955	255,211	169,871	66.5
1960	274,834	179,176	65.1
1965	305,115	190,748	62.5
1975	360,000	211,000–225,000	58.7–62.5

Source: Data 1950 and 1965, *Health Resources Statistics, 1965*, table 72. (For 1975 estimate, see text.)

physicians in 1965. Of this total, about 20,000 will be retired or not in practice. It is expected that the number of physicians in private practice in 1975 will be between 211,000 and 225,000—an increase of from 9 to 18 percent over the 1965 number.

C. Physician Productivity

Concern over the physician shortage has tended to focus most of the attention on the supply of physicians or the number of physicians available. Obviously, though, measures such as the physician-to-population ratio are only crude indicators of the output of physician services. If the productivity of physicians is increasing overtime, the physician-to-population ratio will understate the increase in the supply of physician services available to the population.

The data presented in table 5 summarize the nature of the problem. Between 1959 and 1964, years for which visit data are available, the number of physicians in private practice increased by about 8 percent; personal expenditures for physician services increased about 40 percent. Price (fee) increases appear to explain slightly more than one-third of the increase in personal expenditures. Patient visits can be said to account for another tenth of the increase. More than half of the increase in expenditures would appear to be attributable to an expansion in physician services and increased physician productivity.

A major difficulty is obtaining an appropriate measure of the output of physicians. The purpose of consuming physician services is to save morbidity days, improve health, derive satisfaction, welfare, etc. The conventional measures of performance, physicians per capita, patient visits, expenditures for physician services, etc., are all measures of inputs to the process of producing physician services. As such they can provide only relatively crude indicators of changes in the productivity of physicians.

The task has been compounded as the process of producing physician services changes and the services performed under the direction of the physician in his offices expand. Lower level medical personnel are increasingly being substituted for the physician in the process of producing medical services. At the same time X-rays, clinical tests, and other labora-

TABLE 5.—*Comparison: Number of physicians in private practice, patients visits, personal expenditures for physician services, prices, 1959–64*

Year	Number of physicians [1]	Patient visits [2]	Personal expenditures [3]	Price index [3]
1959	100	100	100	100
1964	108	104	140	115

[1] U.S. Public Health Service, National Center for Health Statistics, *Health Resources Statistics*, 1965, and *Statistical Abstract*, 1963, p. 75.

[2] U.S. Public Health Service, National Center for Health Statistics, *Volume of Physician Visits*, Series 10, No. 18.

[3] U.S. Department of Commerce, *The National Income and Product Accounts of the U.S., 1929 to 1965.*

tory work are being performed more often in the physician's office under his direction than at hospitals or special laboratories.

Using constant dollar-expenditure data to measure changes in physician productivity runs several risks. Increases in constant-dollar figures may not necessarily mean an increase in the volume of services performed. It may mean only that a more expensive type of service is taken—for example, the increasing use of specialists. Rising constant-dollar expenditures, on the other hand, may simply mean that consumers are purchasing services that they otherwise would have bought elsewhere.

The data presented in table 6, which compare increases in expenditures, price, and the number of physicians, should be examined with these limitations in mind. The fourth column of the table presents estimates of the average annual increase from 1955 in the productivity (or output) per physician. The indications are that physician productivity has increased at an average rate of between 3.5 and 4.2 percent per year.

If a similar pattern of performance were to hold for the decade of 1965–75—say, an average annual increase in physician productivity of 4 percent—then the total supply of physician services in 1975 may be expected to be about 75 percent greater than it was in 1965. In the case of physicians in private practice, the increase in total supply of services would be between 65 and 75 percent.

D. The Demand for Physician Services

The reasons for seeking physician services are many and varied. Two general categories can be established—those which stem from the consumer's decision and those which stem from the physician's decision. In the first instance, we are really talking about the decision to make the initial contact with the physician. This may be a long-term decision to have a physical checkup, or it may come as a result of seeking alleviation of a disabling or painful condition, seeking an explanation of a persistent condition, or a sudden need dictated by an emergency. After the consumer has visited the physicians' office, he may be told that the physician will see him again—because the physician feels he should see him.

Clearly, at one end of the consumer's scale economic factors do not enter significantly into the decision to use physician services. That is, in instances involving a grave emergency the consumer will not make his decision on the basis of cost, although he may worry about it as he is recovering. At the other end of the scale economic factors such as price, may well dominate the pattern of behavior on the part of the consumer. For example, in the case of the common cold the consumer may decide

TABLE 6.—*Number of physicians, expenditures for physician services, prices, and physician productivity, 1950–65*

Year	Personal expenditures (millions of dollars) [1]	Price index [1]	Physicians in private practice (thousands)	Average annual increase in productivity (percent) [2]
1955	3,457	89.8	159.4	....
1960	5,292	107.2	168.1	4.0
1963	6,413	116.9	175.0	3.3
1964	7,036	119.9	178.5	3.5
1965	7,787	124.2	180.8	3.7

Year	National expenditures (millions of dollars) [3]	Price index [4]	Total physicians (thousands)	Average annual increase in productivity (percent)
1955	3,680	90.0	255.2	....
1960	5,684	106.0	274.8	4.0
1963	6,891	114.4	289.2	3.3
1964	8,065	117.3	297.1	4.2
1965	9,003	121.5	305.1	4.2

[1] U.S. Department of Commerce, *The National Income and Product Accounts of the U.S., 1929–1965.*

[2] Productivity has been computed using the following formula:

$$\text{Prod}_t=\left[\frac{E_t}{E_o}\div\frac{P_o}{P_t}\div\frac{D_o}{D_t}\right]\frac{1}{t}$$

where E represents expenditures, P the price index, and D the number of physicians. T represents the number of years from the base year, in this case 1955.

[3] Social Security Administration, *Social Security Bulletin*, February 1967.

[4] Bureau of Labor Statistics, *Consumer Price Index*, Physician Fee Component.

to postpone calling on the physician in the hope that the condition will cure itself. Or, when no emergency is involved the consumer may shop around in an effort to seek a lower cost for performance of services.

Once the consumer has placed himself in the physician's hands the physician plays a major role in deciding the amount of service consumed. His decisions, while professional, are not wholly independent of economic factors. He may misjudge family income, but nonetheless this is a factor in his pricing decision as well as his decision with respect to the level and character of the service provided and suggested. The patient can, of course, and in many instances will, withdraw from the relationship with the physician if he feels dissatisfied. This is more likely to occur if the services performed are of a minor nature.

Various attempts have been made to statistically explain the consumption of physician services by taking into account population characteristics—age, sex, race—and socioeconomic factors—the distribution of population between urban and rural, family size and characteristics, income levels, prices for medical services, etc. These efforts have been limited to examining a single year's sample observations. Unfortunately, the limited amount of available time series data does not bear out all the implications of the single-year cross sectional studies. For example, a study prepared for the American Medical Association indicated that the demand for physician visits displayed an income elasticity of 0.6.[1] That is, for every 10-percent rise in family incomes there was a 6-percent rise in the family demand for physician visits. The Public Health Service studies on physician visits for 1958–59 and 1963–64, however, do not bear out this result.[2]

One alternative to a statistical explanatory model is to assume that expenditure trends which have marked the past 10 years will hold for the next 10 years. The shortcomings of such an approach are many and obvious. Nonetheless, it affords a starting point.

Four ways of looking at past expenditure patterns are summarized in table 7. The equations in this table relate personal and national expenditures for physician services with personal income and with GNP. Further, because a clear rising time trend is present in the shares of personal income and GNP devoted to expenditures for physician services, trend equations for these relationships were also established.

The figures for personal income and GNP presented in table 1, and the trend equations of table 7, yield etsimates that personal expenditures for physicians may fall between $17.9 and $18.5 billion (current prices) in 1975 and that national expenditures could total between $19.9 and $23.5 billion (current prices) in 1975. Expenditures on these levels would represent something more than a doubling of expenditures over the 10-year period (about 2.30 to 2.35 times the 1965 levels of expenditures), a pace of growth just about matching that of the past 10 years.

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[1] American Medical Association, *Report of the Commission on the Cost of Medical Care,* vol. I, 1964.

[2] U.S. Public Health Service, National Center for Health Statistics, *Volume of Physician Visits,* Series 10, No. 18, June 1965.

TABLE 7.—*Trends in expenditures for physician services, 1955–65*

A. Personal Expenditures[1]

1. Personal expenditures (Y) relative to personal income (X). (X and Y in billions of dollars.)

   Least squares regression:

$$\hat{Y}=-2.57+0.019\ X$$

2. Trend of personal expenditures as a share of personal income (Y) relative to Time (X). (Base year 1955=1.)

   Least squares regression:

$$\hat{Y}=0.0109+0.00033\ X$$

B. National Expenditures[2]

1. National expenditures (Y) relative to gross national product (X). (X and Y in billions of dollars.)

   Least squares regression:

$$\hat{Y}=-4.02+0.019\ X$$

2. Trend of national expenditures as a share of gross national product (Y) relative to Time (X). (Base year 1955=1.)

   Least squares regression:

$$\hat{Y}=0.0106+0.0004\ X$$

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[1] U.S. Department of Commerce, *The National Income and Product Accounts of the United States, 1929–65.*

[2] *Social Security Bulletin,* February 1967.

A part of the projected increase in spending will come as a result of an increased number of physician visits. One way to estimate the increase in physician visits is to assume that the age-specific visit rate does not change over the 10-year period. Indeed, since visit data is not available for 1965 it was necessary to use the 1963 to 1964 age-specific visit rate to estimate the number of visits in 1965 and in 1975. The results of this estimation procedure, shown in table 8, imply that visits may increase by 13.5 percent over the 10-year period. This would be a slightly faster rate of growth than for the population as a whole.

E. Prices for Physician Services

As noted earlier, physicians enjoy the position of being discriminating monopolists. However, they appear not to have used their market power to maximize income in the short run. Indeed, there is every indication that, given the rapid growth in demand, prices for physician services could have risen much more rapidly than they did over the past decade. Instead, waiting periods and queues grew longer. Studies of demand conducted for the AMA indicate that total expenditures for physician services would not have declined, had prices gone up more rapidly.[8]

The basic assumption here is that in lieu of maximizing income in the short run, physicians seek rather to maintain their relative income position in the economy by adjusting prices and the volume of services they offer. A corollary is that increasing prices will not lead to an increase in the supply of physician services, but will result only in a reduction of the waiting times for service. Evidence in support of the basic assumption is hard to come by. Over the past 15 years or so, however, despite the rapid increase in the demand for their services, the incomes of physicians have not increased at a significantly more rapid rate than have incomes of other professional groups (see tables 9 and 10).

Given the basic assumption, the crucial question is how physicians will choose to respond to the projected 2.30- to 2.35-fold growth in expenditures for physicians over the decade of 1965 to 1975. If, for example, all of the increase were taken out in the form of a price increase, physician fees could be expected to rise at an annual rate of about 7 percent. This rate of increase is about what the United States has experienced over the past 2 years. On the other hand, the recent increases in physician fees have been considerably larger than the annual average of the past decade (1955 to 1965) and may be a part of the physicians' response to recent medical legislation.

TABLE 8.—*Estimated physician visits, 1965 and 1975*

Age in years	1963–64 visit rate [1]	Physician visits (millions)	
		1965	1975
Under 5	5.5	112.2	116.6
5 to 14	2.8	110.6	110.9
15 to 24	4.3	132.0	172.4
25 to 44	4.5	210.6	242.6
45 to 64	5.0	195.0	217.0
Over 65	6.7	121.9	142.0
Total	....	882.3	1,001.5

[1] U.S. Public Health Service, National Center for Health Statistics, *Volume of Physician Visits,* Series 10, No. 18.

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[8] American Medical Association, *Report of the Commissin on the Cost of Medical Care,* vol. 1, 1964.

TABLE 9.—*Indexes of income of physicians and selected occupational classes, 1951–65*

	1951	1955	1959	1963	1965
Physicians[1]	100	122	168	191	220
Professional, technical, and kindred workers[2]	100	124	154	....	205
Managers, officials, and proprietors[2]	100	128	161	....	197
Average annual earnings per full-time employee, all industries[3]	100	119	141	163	176

[1] *Medical Economics*, various issues.

[2] Bureau of the Census, *Consumer Income*, Series P–60.

[3] U.S. Department of Commerce, *Income and Product Accounts of the United States, 1929–1965.*

TABLE 10.—*Income of physicians and other professional groups, 1949 and 1959*

	1949	1959	1949/1959 (percent)
Physicians and surgeons	$8, 309	$15, 015	181
Dentists	6, 448	12, 392	192
Lawyers and judges	6, 284	11, 261	179
Engineers	4, 684	8, 397	179
College faculties	4, 366	7, 510	172

Source: U.S. Department of Commerce, Special Report, P–E, No. 1B, 1960 Census of Population, *Occupational Characteristics.*

If physicians choose (or are able) to increase the supply of services in the fashion we have projected earlier—a 75-percent increase in 1965 to 1975—fees can then be expected to increase by about 35 percent over the 10-year period. A fee increase on this scale—roughly 3 percent per year—would represent a continuation of the general pace of fee increases in the past. For the period 1955 to 1965, the physician fee component of the consumer price index increased at an average rate of 3.1 percent per year.

A fee increase of 3 percent per year coupled with a 4 percent per year increase in physican "productivity" would lead to an average income increase (assuming costs remain a constant share of gross income as they have in the past) of about 7 percent per year. This would mean that physician incomes would very nearly double over the period 1965 to 1975.

This income performance, while exceeding the growth of the previous decade (6 percent per year), is about in line with the growth in physician incomes over the last few years (1963 to 1965). Moreover, this pace of income increase is in line with the more rapid rate of growth projected for the entire economy over the next decade. As such, it would be a rate which would generally maintain physician incomes relative to the incomes of other professional groups in the economy.

F. Implications

The projections presented here do not call for drastic changes in the general picture of physician services over the period 1965 to 1975. From the physician's point of view this means that the pressures of the 1965 to 1975 decade will be very much the same as those of the 1955 to 1965 period. If the visit rate remains the same, the 1975 population may be expected to generate about 13.5 percent more visits than in 1965. The increase expected in the number of physicians in private practice will just about match this. In 1975, then, doctors will face roughly the same queues, and the same rationing decisions, that they have faced over the past decade. While the problem does not seem likely to worsen, neither does it appear likely to improve.

In another sense, however, the pressures on the physician may be expected to worsen over the decade of 1965 to 1975. While the numbers of visits per physician are not likely to increase greatly, physicians will be doing more for those they do see. The expansion and upgrading of service under the direction of the physician (i.e., the increase in his productivity) will leave him working more for about the same number of people. The role of the physician as an administrator in the provision of service is expected to grow substantially over the 10-year period with its consequent impact on the physician-patient relationship.

For all of this, physician incomes are expected to grow somewhat more rapidly than in the past, but, then, so are all incomes. It seems likely that, given the increase projected for the economy, physician incomes will have to almost double over the 1965 to 1975 decade if physicians are to maintain their income position relative to other professional groups. The increase in fees (3 percent per year) and the increase in "productivity" (4 percent per year) projected for 1965 to 1975 will yield just about that result.

From the consumer's point of view, the individual patient is not going to get any more of the physician than he does now. Indeed, he will probably see even less of him. Moreover, he will be confronted with the same queues and informal rationing system he now faces. At the same time, he will be enjoying a significant increase in the services provided under a physician's auspices and direction. All of this will be accompanied with an increase in physician fees that will be somewhat more rapid than the rise in the general price level. By 1975 it is expected that personal expenditures for physician services will still be less than 2 percent of personal income (1.78 percent).

All this serves to emphasize the importance of continuing to increase physician productivity. In the context of the present organization of physician services this means: (1) an increasing substitution for physicians in the production function; (2) an expansion of the service provided under the direction and guidance of the physician; and (3) an upgrading of services, especially through increasing specialization.

Despite the increases in productivity that were obtained in the past decade, significant opportunities still appear open to exploitation for the next decade. For example, in 1964 almost one-fourth of the physicians in private practice employed four or more auxiliary workers. Almost half of all physicians in private practice, however, employed less than two auxiliary workers. Increasing grouping of practice offers still other opportunities. By and large, the projected 4 percent per year increase in productivity appears to be within reach.

If physicians are not able to increase productivity as hypothesized, then it seems likely that physician fees will increase more rapidly than projected. If this is the case, some decrease in the demand for physician visits may be expected—price increases will serve to reduce the queues for service. Expenditures for physician services, however, will not be likely to shrink much, if at all, as a result of price increases.[4] Physician incomes, then, would still increase approximately as projected. Probably more important than the consumers' economic response to larger fee increases are the political repercussions that could result from large increases in physician fees.

Nurses

A. Introduction

Professional nurses provide a wide array of health services in a range of different employment settings. About two-thirds of the active professional nurses are employed full or part time in hospitals and related institutions. Of these, approximately 85 percent are employed in non-Federal short-term general hospitals. Other large employment categories of professional nurses include private duty (11 percent), office duty (8 percent), and public health activities (6 percent).[5]

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[4] Demand studies made for the AMA indicate that while price increases will reduce the number of visits demanded, expenditures for service will remain the same or increase as a result of a price increase (*Report of the Commission on the Cost of Medical Care,* American Medical Association, 1964).

Over the period 1955 to 1965 the total number of active professional nurses increased at an average rate of 3.8 percent per year. This implies a somewhat more rapid increase in the supply of nursing services than was actually the case. A significant share of this increase in total active nurses is represented by an increase in part-time nurses. Part-time nurses increased from 11 percent of the total in 1950 to 18 percent in 1960 and 22 percent in 1964, the last year for which data is available. The number of part-time nurses in hospitals increased 70 percent from 1957 to 1964, from 20 percent of the nursing positions to more than 25 percent.

An inventory of licensed professional nurses, conducted in 1962 by the American Nurses Association (ANA), revealed that a sizable number of licensed professional nurses are not active at any one time. In 1962 the nonactive group represented one-third of the total licensed profession. Many of these, of course, are not active for family or other personal reasons. A significant number, however, might be expected to respond to changes in salary rates and reenter active practice at higher income levels. In the supply projections made below, no attempt is made to account specifically for the behavior of the nonactive group.

B. Supply of Nurses

Approximately 90 percent of the professional nurses in practice in 1962 held diplomas or associate degrees. These degrees are obtained from hospital nursing schools and community college training programs, respectively. These training programs generally run from 2 to 3 years.

Almost 8 percent of the active nurses in 1962 possessed a baccalaureate degree obtained from a college or university with a 4-year or sometimes a 5-year program. Over the past decade there has been an increasing emphasis on the baccalaureate degree. In the 1955–56 academic year, baccalaureate degrees were awarded to 10.5 percent of the graduating nurses. By the academic year 1965–66, the share of the graduating class receiving baccalaureate degrees was 15.5 percent.

The growing preference for the baccalaureate program has several side effects on the supply of nurses. First, it tends to postpone increases in supply. By and large, the diploma schools and the community college programs get nurses into service more quickly. Second, increasing reliance on the 4- and 5-year programs tends to restrict the potential candidate population. From the student's point of view the cost differential is substantial, and the cost of the baccalaureate program undoubtedly proves to be a barrier to entry for many potential nursing candidates. At the same time, placing nursing training on a baccalaureate program also puts it in direct competition with other 4- and 5-year training programs. Prominent among the competitors, of course, is teaching.

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[5] General data regarding the nursing profession were derived from various issues of *Facts About Nursing*, an annual publication of the American Nurses Association, and *Health Manpower Source Book*, sec. 2, Nursing Personnel, Public Health Service, revised January 1966.

The payoffs as a result of increased training can be substantial. Fully exploiting these payoffs, however, may call for a significant revision in the way in which medical services are provided. One aspect of this would be to upgrade the roles of nurses with baccalaureate degrees, not only in terms of management of nursing services, but also as substitutes for physicians in performing selected medical services. In many clinics and physicians' offices this is already being done.

It is estimated here that the supply of nurses for active service in 1975 will be approximately 790,000. This would represent an increase of about 30 percent over the number of active nurses in 1965. This estimate, summarized in table 11, is predicated on the assumption that the number of nursing graduates will increase at an average rate of 2 percent per year and that attrition from active nursing practice will average 3 percent each year. Actually, through most of the 1955–65 period the number of graduates varied within only a very narrow range. In the last few years, however, there has been some growth (i.e., 11 percent from the academic year 1961–62 to the academic year 1964–65).

Attrition is used here to represent losses from the active group as a result of death and the movement to inactive status. The estimate also reflects the return to practice of nurses who were formerly inactive and the addition of foreign-trained nurses. The 3-percent rate used here was derived as an average residual figure which related nursing graduates and the number of nurses actively practicing over the period 1956–62. In the last few years (1963–66) attrition has declined below the 3-percent annual average, presumably as a result of the return to practice of formerly inactive nurses.

No attempt is made here to distinguish between part-time and full-time active nurses. Should part-time nurses increase as a share of the total active nursing group, the projection in this report would overstate the actual growth in the supply of nursing service. It seems more likely that the ratio will hold at its present level, or, possibly in the face of the sizable salary increases in the past 2 years, decline slightly.

C. Demand for Nurses

Hospitals, nursing homes, and related institutions are the primary sources of demand for nurses. In 1964 they accounted for 67 percent of the nurses in active practice. Private practice accounted for another 11 percent, and office duty accounted for 8 percent. Public health, school services, industrial nursing, teaching, and other fields accounted for the remaining 14 percent.

In non-Federal short-term general hospitals, the number of nurses per patient increased modestly over the decade 1955–65 (approximately 10 percent). The increase in nurses per patient was not as rapid as the increase in other hospital personnel per patient, so over the period nurses declined as a share of total short-term hospital employment from about 27 percent to about 24 percent. If both these past trends were to continue to 1975, the number of nurses per patient in non-Federal short-term general hospitals would increase to about 0.65. Coupling this with the estimate of the daily census in 1975 (820,000), we get an estimate of short-term hospital demand for nurses which totals 533,000.

If it is assumed that the growth of other institutional demand for professional nurses keeps pace with that of non-Federal short-term general hospitals, the total institutional demand will be for approximately 630,000 nurses.

TABLE 11.—*Estimated nurse supply to 1975 based on a 2-percent annual increase in graduations and a 3-percent attrition rate*

Year	Number of active nurses (thousands)	Graduations (June)	Attrition (3-percent)	Net addition to supply
1966	[1] 621.0	36.4	18.6	17.8
1967	638.8	37.1	19.2	17.9
1968	656.7	37.8	19.7	18.1
1969	674.8	38.6	20.2	18.4
1970	693.2	39.4	20.8	18.6
1971	711.8	40.2	21.3	18.9
1972	730.7	41.0	21.9	19.1
1973	749.8	41.8	22.5	19.3
1974	769.1	42.6	23.1	19.5
1975	788.6	....	....	....

[1] American Nursing Association, *Facts About Nursing*, 1966 Ed.

In the decade of 1955–65 the number of nurses employed in public health and school systems increased about 11 percent, or slightly more rapidly than the population. In the face of expanding medical services at the local government level, it seems likely that the trend of the future will at least match that of the past. If this is the case the public health and school demand for nurses in 1975 will be approximately 47,000. This certainly must be viewed as a minimum estimate.

From 1955 to 1965 there was a steady decline in the number of nurses in private practice. This decline came in the face of a growing non-Federal short-term general hospital patient census (somewhat more than half the private-duty nurses have been employed in short-term general hospitals). It undoubtedly reflects two forces: Increases in the charges for private-duty nurses and the changes in the supply of nursing service in the hospitals.

If the decline of the past decade were to persist to 1975, the number of nurses on private duty would fall to about 60,000. This, however, would mean a very sharp drop in the ratio of private-duty nurses to short-term general hospital patients. At the other end of the scale, if that ratio is assumed to hold constant the demand for private-duty nurses would increase by almost 60 percent over the 1965 to 1975 decade, sharply reversing the trend of the previous 10 years. For purposes here, some decline in the private-duty nurse-to-patient ratio is assumed, but not at the pace of the preceding 10 years. The result is a projected 30-percent increase in the demand for private-duty nurses over the 10-year period. The number of private-duty nurses in 1975, then, is expected to be about 88,000.

Over the past 10 years or so, the number of office nurses per physician in private practice have increased at an average rate of about 2 percent per year. If it is assumed here that this trend will continue into the future, and given the projected number of physicians in private practice in 1975, the office demand for nurses can be expected to be about 70,000. Again, the estimate seems more like a minimum than a maximum.

Occupational health, nursing education, and other nursing activities accounted for slightly more than 7 percent of the total active nurses in 1964. If it is assumed that this share will remain constant to 1975, the demand of these sectors will total about 60,000 nurses.

The expected total demand in 1975 will be for at least 895,000 nurses (see table 12). This may be compared with the supply estimate presented above—approximately 790,000 nurses. Demand will exceed the apparent supply by something like 100,000 nurses. It must be recognized,

TABLE 12.—*Projected demand for nurses, 1975*

Field	Thousands	Percent
Hospitals and related institutions	630	70
Public health and schools	47	5
Private duty	88	10
Office nurses	70	8
Occupational health, educational, and other	60	7
Total	895	100

however, that the supply estimate does not include those professional nurses on inactive status or not employed in nursing. As noted above, roughly one-third of all professional nurses were not employed in nursing in 1962. Substantial wage increases and improvements in working conditions could be expected to lead to significant shrinkage of this pool, both by drawing nurses back into practice and by slowing their withdrawal. This in turn implies that the supply of nurses, given a continuation of wage increases such as those that have been granted in the past year or so, would be very likely to match the demand projected by 1975.

Hospital Facilities

A. Introduction

Over the past few years the demand for hospital services has increased substantially. Admissions of non-Federal short-term general hospitals increased 15 percent over the 5-year period of 1960 to 1965. The average daily census of those hospitals increased by 18 percent over the same period and the average length of stay increased from 7.6 days to 7.8 days. To meet this increase in demand, the number of hospitals and beds increased by 6 percent and 16 percent, respectively. The expansion of facilities was also accompanied by a more intensive use of hospital facilities. For example, occupancy rates increased from 74.7 percent in 1960 to 76 percent in 1965.

The period of 1960–65 also saw changes in the non-Federal short-term general hospital "production functions." Personnel per bed increased by about 10 percent; assets per bed increased by almost 30 percent. The increase in the amount of capital per employee was substantial. On a per patient basis, the increase in hospital personnel was 9 percent from 1960 to 1965, while the increase in assets was 28 percent.

These changes were accompanied by substantial increases in non-Federal short-term general hospital costs, and, consequently, their prices. On a per-patient-day basis, the costs rose from $32.23 in 1960 to $44.48 in 1965—a 38-percent increase. On a per-bed-per-year basis, costs rose from $8,789 to $12,340. This represents an increase of about 40 percent over the 5-year period.

Hospitals range from State-operated, long-term psychiatric care hospitals to private, proprietary, or short-term general hospitals. For the purposes of this study, the non-Federal short-term general hospitals are viewed as the most important. These hospitals account for only about 50 percent of the average daily census, but handle 92 percent of the total annual hospital admissions, employ about 70 percent of the hospital personnel, and represent approximately two-thirds of the assets of all hospitals.

Among the hospitals, a tremendous range of services is provided. Virtually every hospital has a diagnostic X-ray facility, a clinical laboratory, and operating rooms. However, in 1965 only slightly more than one-half the non-Federal short-term general hospitals had a pathological laboratory; less than one-fourth had intensive care units; and less than one-twentieth provided family planning service. The range of services is in large part a function of hospital size. For example, in 1965 all large hospitals (500 beds or more) had a pathological laboratory, nine out of 10 had intensive care units, and almost half provided family planning service.

There is just no comprehensive, single-measure way of dealing with the broad spectrum of services that are made available in hospitals. Nonetheless, some convenient way of dealing with the complex array of services must be found for a general study of the types here. The number of beds has been arbitrarily chosen as a general surrogate for hospital services availability despite its obvious shortcomings.

B. Demand for Beds

The aggregate demand for hospital services or beds at any one time may be viewed as a function of two broad groups of factors—the demographic and the socioeconomic characteristics of the population. Changes in the size of the population and in its characteristics (age, sex, and race) will have a direct impact on the demand for hospital services. Socioeconomic factors relate to the willingness of the population to utilize hospital services and their ability to do so. These include income levels, education levels, existence of insurance and/or prepayment programs, social legislation (such as Medicare), prices charged for hospital services, etc. One major factor affecing the willingness of the population to utilize hospital services over the past 20 years has been the great progress of medical technology. Formerly hazardous operations have become routine, and the range of services that can be provided has broadened enormously.

The role of population changes in shaping changes in hospital admissions and the demand for beds may be shown in the following fashion. Each age, sex, and race group in the population has its own characteristic hospital admission rate and average length of stay. Estimates of these chracteristic rates have been prepared by the Public Health Service from a survey conducted for the period July 1963–June 1964. The estimated rates by age groups are shown in table 13. Using the admission and length of stay rates and population data, it is possible to construct hypothetical admission totals and numbers of patient-days. These have been calculated for selected years over 1955 to 1975 and are shown in tables 14 and 15. From 1955 to 1965 the population increased by 17.5 percent. Hypothetical admissions increased by a slightly smaller percentage—16.5 percent. For the period 1965–75, on the other hand, while population is projected to increase 13 percent, hypothetical admissions are projected to grow by a slightly faster pace—15 percent.

From 1955 to 1965, non-Federal short-term general hospital admissions increased 38.5 percent. It would appear that slightly less than half of this increase can be attributed to population growth and changes in the demographic characteristics of the population. This leaves a bit more than half the increase to be explained by socioeconomic factors.

TABLE 13.—*Admission (discharge) rates and average length of stay by age group, 1963–64*

Age group	Annual discharge rate per 100 persons	Average length of stay (days)
Under 15 years	6. 83	6. 1
15 to 24 years	15. 14	5. 7
25 to 44 years	15. 62	6. 9
45 to 64 years	15. 44	10. 9
Over 65 years	22. 59	12. 6

Source: U.S. Public Health Service, National Center for Health Statistics, *Hospital Discharges*, Series 10, No. 30.

TABLE 14.—*Hypothetical short-stay hospital admissions (discharges) by age group, 1955–75 (1963–64 discharge rate)* [1]

Age group	1955	1960	1965	1975
Under 15 years	3, 343	3, 831	4, 091	4, 156
15 to 24 years	3, 293	3, 721	4, 651	6, 072
25 to 44 years	7, 371	7, 370	7, 308	8, 416
45 to 64 years	5, 173	5, 590	6, 023	6, 695
Over 65 years	3, 281	3, 763	4, 101	4, 779
Total	22, 463	24, 277	26, 175	30, 119

[1] Figures are in thousands.

Source: U.S. Public Health Service, National Center for Health Statistics, *Short-Term Discharge Rates*, Series 10, No. 30.

TABLE 15.—*Hypothetical number of hospital days by age groups, 1955–75 (1963–64 average length of stay)* [1]

Age group	1955	1960	1965	1975
Under 15 years	20, 392	23, 375	24, 961	25, 351
15 to 24 years	18, 770	21, 215	26, 510	34, 610
25 to 44 years	50, 867	50, 853	50, 425	58, 070
45 to 64 years	56, 397	60, 931	65, 650	72, 986
Over 65 years	41, 340	47, 414	51, 672	60, 215
Total	187, 766	203, 788	219, 220	251, 234

[1] Figures are in thousands.

Source: U.S. Public Health Service, National Center for Health Statistics, *Average Length of Stay by Age Group*, Series 10, No. 30.

These socioeconomic factors can be treated as a trend affecting hospital admissions that averaged a 1.8-percent-per-year increase in demand for service over the 1955–65 decade.

A similar pattern is reflected in the data with respect to the number of patient-days. The total patient-days served by non-Federal short-term general hospitals increased almost 40 percent from 1955 to 1965. The growth in the hypothetical number of patient-days over 1955 to 1965, which reflects only demographic changes, was 16.5 percent. If account is taken of the trend in hospital admission rates over 1955 to 1965 (1.8 percent per year), there appears to have been some small shift in length of stay over the period. American Hospital Association (AHA) data indicates that the average length of stay declined somewhat from the beginning of the 10-year period and then rose again at the end. If 1960 were used as a base rather than 1955, a somewhat stronger shift or trend in length of stay (about 2.5 percent per year) would appear.

A minimum estimate of the increase in hospital admissions and patient-days from 1965 to 1975 ought to take into account the population changes projected for the period and the socioeconomic trend. Combining these leads to an estimate that both admissions and patient-days will increase 38 percent over the period. A more realistic estimate of the demand for hospital services, however, must attempt to take into account the impact of the recently enacted Medicare program.

Preliminary evidence suggests that Medicare has had the effect of raising significantly the utilization of hospital services by the over-65 age group. AHA surveys indicate that the length of stay for the over-65 group increased about 20 percent in the first 6 months of the program. The Social Security Administration has estimated that overall utilization of hospital services by the over-65 group increased 15–20 percent in the 1st year of the program.

If short-term general hospital utilization by the over-65 group can be expected to increase as much as 20 percent as a result of Medicare programs, then the estimate of a 38-percent growth in hospital admission and census from 1965 to 1975 is too low. A more realistic expectation would be that while admissions might not grow much more rapidly than 38 percent, the average daily census would increase by perhaps 45 percent as a result of longer lengths of stay by the over-65 age group. This means that by 1975 hospital admissions in the neighborhood of 36.5 million per year and an average daily census of about 820,000 patients can be expected.

The expansion of short-term general hospital facilities needed to meet this growth in demand is substantial. Some of the increase can be met through a more efficient and/or more intensive use of existing facilities. Using occupancy rates as a measure, there has been an increase in use of facilities over the past decade. That is, in 1955 the occupancy rate was 71.7 percent and by 1965 it had risen to 76 percent. If this improvement were to continue to 1975, occupancy rates could be about 80 percent. On the other hand, increases beyond present levels will be hard to come by since they will have to result almost solely from a more efficient use of facilities rather than a simple intensification of use.

If occupancy rates do not improve over the period 1965–75, the Nation will need about 1,075,000 beds in non-Federal short-term general hospitals. If, on the other hand, occupancy rates do rise to 80 percent by the end of the period the need would be for about 1,025,000 beds. These represent increases of approximately 45 and 40 percent respectively over 1965 levels.

C. Supply of Hospital Beds [6]

Over the decade of 1955–65 the number of non-Federal short-term general hospitals increased by less than 10 percent. However, the number of beds in those hospitals increased by approximately 30 percent (or 2.6 percent per year). The pace of growth was slightly more rapid in the latter part of the period (3 percent per year). If the growth rates of the past decade were to carry into the 1965 to 1975 decade, the number of beds in 1975 could be expected to be between 965,000 and 1 million. This would fall somewhat short of the demand for beds that has been projected. The pace of new construction of hospital facilities will have to pick up if the future demands for service are to be met in the fashion that they have been in the past.

If it is assumed that hospital beds are retired at the rate of 3 percent per year, meeting the demand levels projected earlier (1,025,000–1,075,000 beds in 1975) will call for construction of 490,000 to 540,000 non-Federal short-term hospital beds between 1965 and 1975. If an average investment cost of $25.00 per bed (whether for new construction or modernization) is assumed, the construction programs suggested will cost $12.2–$13.5 billion. This may be compared with the spending on medical facilities construction during 1955–65, which totaled approximately $12.5 billion.

If spending for construction of medical facilities lagged 1 year is compared with the number of short-term general hospital beds added over the 1955–65 period, we find that total spending was at the rate of about $82,500 per new bed added. This figure, coupled with the estimate of net new beds to be added (285,000–335,000), yields an estimate of $23.5–$27.5 billion that will have to be spent on new medical facilities over the 1965–75 decade. This is roughly twice the amount spent in the preceding decade and implies that the average annual increase in the spending for medical facilities construction over the period 1965–75 will be somewhat below that of the past.

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[6] Data for short-term general hospitals, 1955–65, was obtained from various "Guide" issues, *Hospitals, JAHA*.

D. Cost of Hospital Services

In 1965 the costs of short-term general hospitals were more than 2½ times their 1955 expenses. In terms of cost per patient day the increase was a smaller, but still impressive, 94 percent. If this trend in patient-day costs were to continue to 1975, the cost per patient day in that year would be about $86.30 compared with the cost per patient day of $44.48 in 1965. Increases in costs in the past 2 years (1966–67), however, have been even more rapid.

In the past, hospital expenses (and therefore costs to the patient) have been a direct function of hospital labor costs. That is, labor costs have been a large (62 percent) and stable share of total hospital expenses. This has been true in the aggregate over time and appears to be the case in geographic cross sectional data for a single year. For example, a simple linear correlation relating payroll per patient using data by States for 1965 as the sample observations yielded a coefficient of correlation of 0.98. Relating personnel per patient with cost per patient, again using data by States for 1965, yielded a similarly high coefficient of correlation—0.89.[7]

From 1955 to 1965 hospital personnel per patient increased at an average rate of 2 percent per year. Over the same period wages of hospital personnel increased at an average rate of 4.8 percent per year. If these two trends persist to 1975, the 1975 payroll expense per patient day would be $52.96 as compared with the 1965 figure of $27.44. If payroll costs remained 62 percent of the total, this would mean a total cost per patient day of $85.41 in 1975.

It seems unlikely, however, that wage levels in hospitals will grow at the same pace over the 1965–75 decade as they grew during 1955 to 1965. For example, in the last half of 1966 very substantial increases were granted nurses and other hospital personnel. Some hospitals in the New York City area increased nonprofessional wages 10 percent and more.[8] Increases for registered nurses were even larger. Similar wage increases have been reported from hospitals in other areas of the country.

During the decade of 1955–65 wages and salaries of hospital employees grew slightly (10 percent) more rapidly than did the average annual earnings per full-time employee for all industries. If hospital employees maintain the same relative performance over 1965–75, wages will have to just about double. The presumption is, of course, that hospitals will have to continue to raise wages more rapidly than the average if they are to compete successfully for manpower in the 1965–75 decade. Given the increase projected in terms of personnel per patient, the labor expense per patient in 1975 can be expected to be 2.40 times the 1965 level, or $65.85. The total cost per patient day, again assuming wage costs remain 62 percent of the total (i.e., if other costs increase at the same rate as wages), will be $106.20. This, of course, is an average figure for all non-Federal short-term general hospitals. The range of costs among hospitals is very wide, and it seems likely that in the case of some large city hospitals the $100-per-day patient cost will be met well before 1975.

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[7] American Medical Association, *Distribution of Physicians, Hospitals and Hospital Beds in the U.S.*, 1966.

[8] Bureau of Labor Statistics, *Earnings and Supplementary Benefits in Hospitals, Area Releases, Various Areas.*

It appears likely, then, that by 1975 average short-term hospital costs will exceed $100 per patient day unless some significant changes in the way of producing hospital services are introduced. This would mean that expenditures for care in non-Federal short-term general hospitals will rise to about $32 billion per year by 1975. This is almost four times the 1965 private consumer expenditure for hospital care and not quite 2½ times the national expenditure for hospital care in 1965.[9] This level of expenditure means that a significantly increasing share of personal income and GNP can be expected to be devoted to hospital care in the future.

Dentists

A. Introduction

Over the past decade there has been a modest decline in the ratio of dentists to population (see table 16). This decline has been accompanied by a substantial (60 percent) increase in per capita consumer spending for dental services, which in turn, was accompanied by an increase in dental fees averaging approximately 2.5 percent per year.

Interestingly enough, all this has not given rise to the concern with respect to a shortage that is associated with physicians. Indeed, even within the profession there seems to be little feeling of pressure. A 1965 survey indicated that while 40 percent of the dentists felt they were too busy, almost 25 percent felt they were not busy enough. Queues appear less onerous, and the rationing of dental services is far less severe than that of physician services.

The more relaxed atmosphere of the market reflects, in part, the fact that people generally view dental services with less urgency than they do physician services. By and large, consumers take the position that dental

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[9] $8.1 and $13.4 billion, respectively; *Social Security Bulletin*, February 1967.

TABLE 16.—*Number of dentists, population, expenditures for dental services, 1955–65*

	1955	1960	1965
Total dentists [1]	94, 879	101, 947	109, 301
Active non-Federal dentists [1]	76, 087	82, 630	86, 317
Civilian population (thousands) [1]	162, 967	178, 153	191, 890
Active non-Federal dentists per 100,000 civilians [1]	46. 7	46. 4	45. 0
Expenditures for dental services (millions) [2]	$1, 528	$2, 007	$2, 691

[1] U.S. Public Health Service, Publication No. 1509, *Health Resources Statistics*, 1965.

[2] *National Income and Product Accounts of the United States, 1929–1965.*

services are more easily postponed, and can be postponed at a lower personal cost. This also contributes to the fact that dentists have not had the degree of market control that physicians enjoy.

In summary, while many evidences of imbalance exist in the market for physician services, such evidences do not appear or seem as important in the market for dental services.

B. Supply of Dentists

As in the case of physicians, the estimate here of the increase in the supply of dentists over 1965–75 is based on expected increases in dental school facilities and anticipated attrition from the profession. According to the PHS the present authorization for dental school construction, expansion, and modernization will make available something like 4,500 first-year dental school places by 1970 and as many as 5,000 first-year places by 1975. If it is assumed that attrition from dental schools follows the pattern of the first half of the 1960's, the 1975 graduating class of dentists will be about 4,200, or 1,000 more than that of 1965.

If the pattern of dental graduates over 1965–75 follows that projected (table 17), approximately 17,300 graduates will become available during the period 1966 to 1970 and another 20,000 during 1971–75. The number of graduates projected over the decade will represent about 30 percent of the total number of dentists, active and inactive, projected for 1975.

In contrast to the situation with respect to physicians, future additions to the supply of dentists in the United States are expected to come almost solely from American dental schools. At the present time, no State will accept graduates of dental schools outside the United States and Canada for licensing and 32 of the 50 States require U.S. citizenship for licensure.

TABLE 17.—*First-year students, graduating class, total dentists, 1965–75*

Midyear	First-year students	Graduating class [1]	Attrition [2]	Number of dentists [3]
1965	3, 800	3, 202	1, 779	112, 455
1966	3, 940	3, 342	1, 799	113, 998
1967	4, 080	3, 371	1, 849	115, 545
1968	4, 220	3, 401	1, 873	117, 097
1969	4, 360	3, 526	1, 900	118, 749
1970	4, 500	3, 652	1, 928	120, 501
1971	4, 600	3, 777	1, 958	122, 350
1972	4, 700	3, 902	1, 989	124, 295
1973	4, 800	4, 025	2, 021	126, 334
1974	4, 900	4, 117	2, 055	128, 430
1975	5, 000	4, 206	2, 089	130, 580

[1] Figures are 89.5 percent of the first-year class 4 years earlier (*Health Manpower Sourcebook*, p. 50).

[2] Figures are 1.6 percent of the preceding year's total.

[3] Includes active and nonactive dentists, current year graduates less attrition.

Based on the number of U.S. students presently enrolled in Canadian dental schools, it does not seem likely that more than 10 Canadian-trained dentists per year will be licensed to practice in the United States over this next decade.

Attrition from the dental profession is expected to total approximately 19,500 over the 1965–75 period. This attrition averages out to approximately 1.6 percent of the annual total and is consistent with the apparent attrition from the profession over the period 1959 to 1965.

In summary, then, the total number of dentists, active and inactive, is expected to be 130,600 in 1975, 16 percent more than the 1965 total. This rate of increase is almost identical with the 1955–65 increase of 15 percent. If the share of professionally active dentists, including dentists in Federal service, remains constant (which is approximately what happened over the period 1955–65), the number of professionally active dentists in 1975 may be expected to total about 112,300.

C. Dentist Productivity

Over the past decade or so, the dental profession has met the increases in demand for dental services not only through an increase in the supply of dentists, but also through changes in the ways of producing dental services and the introduction of new equipment. Perhaps most apparent from the patient point of view has been the development and introduction of new anesthetics, high-speed cutting and associated equipment, and the increasing use of auxiliary personnel in the dentist's office.

To some extent the development of new equipment has served both to raise the productivity of dentists and to substitute in part for auxiliary dental personnel. In any event, dentists have generally been quick to adopt new equipment which promises productivity improvements. A case in point is the rapid adoption of high-speed cutting equipment during the 1950's. First available in the early part of that decade, it is estimated that by 1959 the equipment was being used by 61 percent of the dentists in private practice.[10] Less apparent to the patient has been the increasing use by dentists of dental laboratories. By and large, however, this means of increasing dental productivity appears to have been relatively minor.[11]

Deriving measures of increases in dentist productivity is rather more difficult than speculating about the possible sources of such increases. One possible measure is the increase in deflated expenditures per dentist. This measure is identical to that used earlier to provide a measure of the increase in the productivity of physicians. The shortcomings of this measure are many and obvious. The importance of the assumptions regarding the stability of expenditure mix and the representativeness of the price index have already been noted. Despite its shortcomings, this procedure is the handiest for providing an overall measure of the direction and pace of productivity changes. Put another way, there is little evidence to refute the results.

Deflated expenditures per dentist can be calculated from two different sets of data. One alternative is to use the estimates of expenditures for dental services presented in the Social Security Bulletin and the BLS price index for dental services. The other alternative is to use the national income estimate of personal consumption expenditures for dental services and its associated implicit price deflator. In the first alternative, deflated expenditures are calculated to have increased 47 percent from 1955–65. Given a 13.4-percent increase in the number of active non-Federal dentists over the same period, the increase in real output per dentist was 30 percent, or 2.7 percent per year.

In the second alternative, the increase in deflated expenditures is measured as 35 percent over the decade. In conjunction with the 13.4-percent increase in the number of dentists this would mean an increase of 19 percent in the real output per dentist over the 10-year period, an average annual increase of 1.8 percent.

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[10] J. H. Weiss, *The Changing Job Structure of Health Manpower*, Ph. D. Dissertation, Harvard University, Cambridge, Mass., July 1966, p. 136.

[11] Ibid., pp. 140–141.

By way of comparison with these rates of increase, it has been calculated that from 1950–55 real output per dentist increased at a rate of 5 percent per year.[12] However, there is evidence that the average number of hours per year devoted by dentists to their practice increased during this same period.[13] This latter, of course, would cause the deflated expenditure per dentist measure to overstate the actual increase in productivity during that time period. By and large, it appears that average hours worked per year by dentists has stabilized since the mid-1950's.

The total supply of dental services is a function of the number of dentists and their productivity. If the productivity of dentists increases from 1965–75 at the same pace it increased in the preceding decade, and given the number of dentists projected, the supply of dental services in 1975 will be between 38 and 50 percent greater than in 1965. On a per capita basis the increase in total supply is expected to be 23 to 35 percent.

D. Demand for Dental Services

As noted above, expenditures for dental services increased by 86 percent (76 percent in the case of the national income data) from 1955–65. In constant prices the increase is estimated to have been 47 percent (35 percent). This increase reflects both an increase in the number of visits to the dentists and an increase in the services performed per visit.

Estimates of the number of visits to dentists in 1955 and 1965 are not available. One alternative is to construct an estimate of visits for these 2 years, using the 1957–58 and the 1963–64 age-specific visit rates reported by the PHS (table 18) as representative of 1955 and 1965 visit rates, respectively. This yields an estimate of a 13.5-percent increase in visits from 1955–65. It also yields an associated estimate of a 30-percent (20-percent) increase in real service per visit.

The demand for dentist services is a function of many factors—demographic, economic, and social. No attempt is made here, however, to develop an explanatory model of demand. Time and data availability do not permit such an undertaking. One alternative is to assume, as was done in the case of physicians, that the expenditure trends of the past decade will hold for the next. Such a procedure has many obvious shortcomings. Nonetheless, it affords a starting point.

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[12] Ibid., p. 130.

[13] Ibid., p. 133.

TABLE 18.—*Estimates of number of dentist visits by age group, 1955, 1965, 1975*

Age group	Visits (thousands)[1]		
	1955	1965	1975
Under 15	63, 638	77, 882	79, 112
15 to 24	50, 032	61, 440	80, 212
25 to 44	89, 667	88, 903	102, 367
45 to 64	56, 964	66, 317	73, 717
65 and over	11, 620	14, 524	16, 926
Total[2]	271, 921	309, 066	352, 342

[1] Figures were computed using the 1957–58 visit rates for 1955, and the 1963–64 visit rates for 1965 and 1975.

[2] Columns may not add to total because of rounding.

Source: U.S. Public Health Service, National Center for Health Statistics, *Dental Visits*, series 10, No. 23, October 1965.

As in the case of physicians, there is the option of focusing on the trend in expenditures for dental services relative to GNP or personal income, or of focusing on the share of personal income or GNP devoted to dental services. In the first instance, the trend equations are as follows:

$$\text{Consumer expenditures} = -20.9 + 0.0051 \text{ personal income}$$
$$\text{National expenditures} = -347.9 + 0.0046 \text{ GNP}$$

Expenditures are expressed in millions of dollars and personal income and GNP in billions of dollars. In both instances, serial correlation is so high as to render the coefficient of correlation meaningless.

From 1955–65 the share of personal income devoted to dental services increased only modestly—from slightly less than 0.5 percent to slightly more. In similar fashion, the shift in the share of GNP going for national expenditures on dental services was small—from slightly less than 0.4 percent to slightly more. If the same trends continue through the 1965–75 decade, the share of personal income going for consumer expenditures on dental services will still be less than 0.6 percent and the share of GNP going for national expenditures less than 0.5 percent.

These translate into the following estimates of expenditures. Using the trend relationships above, consumer and national expenditures on dental services are estimated to be $5,370 million and $5,448 million, respectively, in 1975. These would represent increases of 100 and 92 percent, respectively, over the 1965–75 period. If the share relationship is used to project expenditures, estimates of $6,025 million for consumer expenditures and $5,796 million for national expenditures in 1975 result. These represent increases of 124 and 105 percent, respectively. On balance, then, a continuation of past trends implies that expenditures will increase somewhat between 100 and 125 percent over the period of 1965–75.

A part of this increase in expenditures can be expected to come as a result of increased demand for dentist visits. Given the 1963–64 visit rate, the population increase over 1965–75 can be expected to yield a 14- to 15-percent increase in the demand for dental services. Unfortunately, the data does not permit an effort to isolate a trend in visit rates. Increasing prices and expanding and upgrading of services can be expected to account for the largest share (85 to 90 percent) of the increase in expenditures.

E. Prices of Dental Services

Earlier it was assumed that physicians enjoyed a market position which allowed them to adjust prices and demand (through waiting periods and rationing of service) so that physician incomes maintained the same relative position over time when compared with other professions. Operationally, this assumption implied that at present prices there was an excess demand and that raising prices would merely reduce waiting lines. No evidence exists that dentists enjoy the same market position. Moreover, there is little evidence of a general shortage of dental services at present prices.

As in the case of physician services, comparing the estimate of consumer expenditures for dental services with the estimate of the supply of those services allows an estimate of the change in prices that will be necessary to equate the two projections. If the midpoint of the estimated demand increase (112.5 percent) and the higher estimate of the supply increase (50 percent) are used, the resulting estimate of the price increase to be expected is 41 percent. This increase, averaging 3.6 percent per year, is substantially above the increase of the 1955–65 decade, which averaged about 2.5 percent per year. A lower estimate of the price increase to be expected results, of course, when the lower estimate of the increase in demand (100 percent) is coupled with the upper estimate of the increase in supply (50 percent). In this case a price increase of 33 percent results (3.1 percent per year), which is still significantly greater than the increase of the preceding decade.

In this latter case the average annual increase in dentist gross income would be 5.8 percent (3.1-percent price increase, 2.7-percent productivity increase). This projected increase in gross income is somewhat greater than the growth in gross income experienced in the preceding decade (about 5.3 percent per year). There is no ready way of estimating the future pattern of costs of dentists in private practice. Over the past decade or so, as dentists have turned increasingly to the use of auxiliary personnel the share of gross income to carry through to net has declined (see table 19). To the extent the increases in productivity postulated for the 1965–75 period depend on increased use of dental auxiliaries, the share going to net may continue to decline. If it is assumed that the decline matches the pace of the 1955–65 decade, the growth in the mean net income of dentists in independent practice will be about 70 percent. This increase (5.5 percent per year as compared with the preceding decade's 5.1 percent) will maintain the position of dentists in the relative income ranking.

Since dental services are probably viewed by consumers as easily postponable, the demand for dental srevices is undoubtedly more price-elastic than the demand for physician services. This raises real questions regarding the results of estimating price changes for dental services over the 1965–75 period in the same method as that used for physician services. Should the demand for dental services prove price-elastic, increasing prices in the magnitude we have projected for 1965–75 could very well lead to a smaller overall increase in demand than has been projected for the period. In a sense, this serves to emphasize the role of productivity in maintaining the rate of growth of dentist incomes. To the extent productivity increases can be substituted for price increase, the more likely it seems that the overall spending and income projections presented here will be realized.

TABLE 19.—*Mean gross and mean net income, independent dentists, selected years, 1955–64*

Year	Mean net income (dollars)	Mean gross income (dollars)	Net as a share of gross (percent)
1955	12,480	22,093	56.5
1958	14,311	26,030	55.0
1961	16,020	29,435	54.4
1964	19,835	36,352	54.6

Source: American Dental Association, *Facts*, various issues, 1958–66.

Appendix VI

Major Studies of Manpower Requirements for Health Services, 1930-65

1. Lee-Jones Study, 1930[1]

On behalf of the Committee on the Costs of Medical Care, Drs. Roger I. Lee and Lewis W. Jones estimated health manpower requirements of the Nation on the basis of expert opinions on the amount of care needed to provide adequate preventive, diagnostic, and curative services. By computing treatment requirements for specific diseases and conditions, the authors found a total need for 134.7 doctors per 100,000, or 165,424 for the United States (about 13,000 more than the existing supply). Nurse needs were estimated at about 220 per 100,000 people, below the national supply but well over the ratio in many parts of the country; and needs for dentists, at 99–179 per 100,000, compared with the existing ratio of 56. Lee and Jones doubted, however, that the Nation was economically able to support an increased supply of professional health personnel at that time. They concluded that the provision of adequate medical care depended more upon revision of organization and economic arrangements than upon increases in the number of personnel.

2. Technical Committee on Medical Care of the Interdepartmental Committee To Coordinate Health and Welfare Activities, 1938[2]

Reviewing health manpower requirements for effective modern health service, this Committee found that many areas of the country lacked an adequate supply of physicians, dentists, and nurses; and that even in better supplied areas, inability to pay for care frequently prevented full use of available personnel. The supply of physicians and private-duty nurses, if adequately distributed, appeared to be approximately sufficient to meet the current effective demand for service. Public health nursing suffered from an undersupply of personnel, especially in rural areas. The number of dentists was grossly inadequate to meet true need, although it sufficed to satisfy demand under current methods of payment. The Committee called for development of a national health program to improve the attractiveness of practice in underprivileged areas and to lower economic barriers to the receipt of care.

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[1] The Fundamentals of Good Medical Care. Chicago, University of Chicago Press, 1933. 302 pp.

[2] The Need for a National Health Program. Report of the Technical Committee on Medical Care. Washington, D.C., 1938. 36 pp. Multilithed.

3. National Health Assembly, 1948

Convened to help Federal Security Administrator Oscar R. Ewing give President Truman plans to raise the national level of health during the next decade, the National Health Assembly considered primarily the country's need for physicians, dentists, and nurses, although some attention was given to other types of health personnel.

Three bases for estimating the number of physicians needed in 1960 were presented. Basis I called for staffing of specified services (Federal services, existing public health services and tuberculosis and mental hospitals, and new hospitals and health centers under the Hill-Burton Act) but otherwise simply for maintenance of the 1940 ratio of physicians to population. Basis II provided for attaining in all States the physician-population ratio of the 12 best States. Basis III used Lee-Jones standards of the volume of physicians' services needed for a population if existing diseases and disorders were to receive all the care considered necessary. But whichever basis was used, the estimated demand for physicians in 1960 was at least 15,000 more than estimated current rates of supply would make available.

Discussing ways to increase medical school output, the Assembly favored Federal financial help for medical school construction and operation. The continued existence of a number of underfinanced schools was threatened unless additional funds were made available; other schools needed aid to expand. There was also a need for Federal scholarships for students, perhaps administered by the individual schools. Although scholarship aid should not be conditioned on agreement to practice in areas of special need, the Assembly suggested that student loans might be made available to be liquidated at some agreed rate through practice in shortage areas, if the student so chose. The possibility of using public funds for fellowships for residency training of physicians who agreed to practice in areas of need was also considered.

Taking into account various factors affecting demand for dental care and productivity of dental personnel, the Assembly anticipated an increase of at least 0.5 percent a year in the number of dentists needed, and an average of at least 2,900 dental school graduates a year through 1960. Evidence indicated a need for expansion of existing dental schools or the establishment of a new school in each of the nine geographic regions. Existing schools required additional funds for replacement of outmoded quarters, more and better paid teachers, stronger research programs, provision of graduate, postgraduate, and refresher courses as well as financial aid for undergraduate and graduate students.

With regard to nurses, professional and practical, the Assembly found an increasing supply in relation to population but many unmet needs. It noted the importance of training nurses for a wide range of functions, including out-of-hospital as well as inhospital care, with a minimum of time spent in noneducational work. For educational as well as financial reasons, nursing schools would best be affiliated with universities; some small hospitals probably should abolish their schools. Increased public financial support of nurses' training was warranted, for student aid as well as school operating costs. Such support should be preceded, however, by more careful cost analysis and cost accounting to determine the value of nursing service rendered by students and the actual cost of training.

Evidence to the Assembly indicated that the Nation's supply of pharmacists was inadequate to meet needs; a national pharmaceutical survey was then in progress to ascertain requirements more precisely. There was a particular shortage of funds for graduate training of research workers and teachers of pharmacy. The Assembly concluded that greater emphasis also should be placed on training in sufficient numbers other types of professional health personnel such as social workers, clinical psychologists, physical therapists, nutritionists, and dietitians.

The problem of providing adequately trained and qualified public health personnel was repeatedly stressed. The Assembly recommended that facilities and personnel for training public health personnel should be at least doubled for each of the professional public health categories, a continuing evaluation of basic needs should be established, and training programs should be developed in accordance with such evaluations. Federal funds, to be administered through State health departments and schools of public health, were recommended for recruitment and training programs.

4. Ewing Report, 1948[8]

On the basis of the National Health Assembly's deliberations and of consultations with many persons in and out of the Government, Federal

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[8] Ewing, Oscar R. The Nation's Health: A Ten Year Program, A Report to the President. Washington, D.C., U.S. Government Printing Office, 1948. 186 pp.

Security Administrator Ewing reported to the President that it was not enough to meet present effective demand; we must assure people services for all their needs. As a standard of adequacy based on actual experience, Ewing proposed the level of supply already attained by the top 12 States—1 physician for every 667 persons (150/100,000), 1 dentist for every 1,400 persons (72/100,000), and 1 nurse (professional or practical) for every 280 persons (357/100,000). He cited specific shortages of psychiatrists, pediatricians, public health workers, and certain categories of supporting personnel.

Simply to staff expanded health facilities planned under the Hospital Survey and Construction Act of 1946, to meet military and other Federal requirements, and to provide basic minimum services throughout the nation under an adequate system of prepayment for health services, we would have needed by 1960 a 40 percent increase in medical school graduates, a 50 percent increase in dental school graduates, and a 50 percent increase in the output of all types of nurses. Mr. Ewing recommended aiming first toward meeting the nation's minimum demand and, beyond that, pushing toward achieving the 12-state goal.

As a means of promoting the needed expansion of training capacity for the health professions, Ewing proposed Federal aid of at least $40 million a year at the outset (more in subsequent years) for the construction of new or expanded schools, the operation of teaching programs, and a scholarship and fellowship program for students. At the same time, he recommended the Federal Government should encourage greater efficiency in the use of professional personnel through the further development of group practice, the wider use of supporting workers, the extension of refresher and postgraduate training courses, and other ways.

5. "Estimates of Future Physician Requirements," 1949[4]

In this study, Dr. Mountin of the U.S. Public Health Service and his staff estimated requirements for physicians in 1960 on the basis of three possible measures of adequacy: To bring the total active physician ratios up to those of the top one-quarter of the inhabitants of the United States (146 per 100,000 civilians), the top third (136 per 100,000) or the top half (118 per 100,000). At 1949 rates of production, the expected supply of physicians in 1960 would have been 227,119. To meet the three standards, the nation would have required an additional 45,000, 34,000, and 17,000 physicians, respectively.

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[4] Mountin, Joseph W., Elliott H. Pennell, and Anne G. Berger. Health Service Areas: Estimates of Future Physician Requirements. Public Health Bulletin No. 305. Washington, D.C., U.S. Government Printing Office, 1949. 89 pp.

For purposes of computing present physician supply, Dr. Mountin and his staff used health service areas outlined by them in the course of prior studies of the distribution of hospitals and the adequacy of available beds. These areas included health service districts (generally a nucleus county with its hospital center, surrounded by several adjacent counties whose hospital facilities were less advanced), and health service regions (several districts falling into a more or less broad trade area). Projections of future physician requirements were based on regional data.

Because of the length of time required to expand medical school output, the authors noted, it would be a practical impossibility to meet even the smallest deficit projected (17,000 additional physicians) in the time available between 1949 and 1960. Allowing another decade for taking care of expected deficits, present medical training facilities would still have to be expanded considerably.

The analyses presented by Mountin et al., were intended to illustrate methods of preparing physician estimates for some future date, if different assumptions were made, and to indicate possible location patterns for physicians. The authors noted that many forces now limiting effective demand for physicians in some areas would have to be removed or modified before the distribution of physicians would parallel more nearly the distribution of population.

6. Health Resources Advisory Committee (Rusk Committee), 1950–51

Created at the outbreak of the Korean war to advise the National Security Resources Board on health resources essential during the period of national emergency, the Health Resources Advisory Committee in 1950–51 made a series of studies analyzing overall national needs for medical and health manpower. These included studies of requirements for physicians, dentists, and nurses for the period 1949–54.[5]

The Committee made three basic assumptions as to health needs. First, we should maintain 1949 staff-population ratios and services. Second, we should meet additional requirements of civil defense, industry, public health, rehabilitation, and teaching in medical, dental, and nursing schools. Third, we must meet the needs of the Armed Forces. The Committee also assumed that for the next 10 years the nation might be in a state of partial or complete mobilization.

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[5] Howard A. Rusk, Chairman, Health Resources Advisory Committee. "Medicine, Mobilization and Manpower." February 12, 1951; Leo J. Schoeny, member, Health Resources Advisory Committee. "Dentistry, Mobilization and Manpower." March 1951; Ruth P. Kuehn, member Health Resources Advisory Committee. "Nursepower in Mobilization." May 4, 1951.

At existing levels of production, substantial deficits in supply of physicians and dentists were foreseen. Because of the time required to train these personnel, a straight increase in school enrollments would meet only part of the need anticipated over the following few years. A larger increase could be effected by acceleration of classes ahead of the usual and current schedule, i.e., eliminating summer vacations. Even with both expansion and acceleration, however, supply was expected to fall behind need. The extent of the deficit by 1954 would be about 22,000 physicians and 9,200 dentists.

As nearly as the Committee could estimate, 49,000 nurses over and above those in sight for 1954 would be needed to meet requirements for this category of personnel. The Committee noted that the shortage of nurses could be reduced slightly by an increase in nursing school enrollment; more nurses should be trained for administrative, teaching, and supervisory positions; the supply of trained practical nurses should be increased as rapidly as possible; and that hospitals should expand and improve their inservice training programs for nurses aides and other auxiliary nursing personnel below the practical nurse level.

7. President's Commission on the Health Needs of the Nation (Magnuson Commission), 1952[6]

Looking ahead to 1960, the Magnuson Commission made six different estimates of the total requirements for physicians, dentists, and nurses, based on a series of varied premises. These premises were:

1. Maintain staff-population ratios of 1940.
2. Maintain staff-population ratios of 1949 (1951 for nurses).
3. Maintain 1949 ratios, staff new hospitals, and meet projected military and mobilization needs. (See Rusk Committee.)
4. Meet certain specified standards for service (direct care at the rate of 1 physician per 1,000 people, hospital staffs, public health, industrial medicine, Armed Forces, and others).
5. Bring low regions of country up to national average ratios and meet needs of Armed Forces at present level.
6. Bring all regions up to ratios for New England and Central Atlantic States—States with a history of high economic and educational levels and with a good supply of health facilities—and meet military needs.

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[6] U.S. President's Commission on the Health Needs of the Nation, Building America's Health, vol. 2: "America's Health Status, Needs, and Resources." Washington, D.C., U.S. Government Printing Office, 1953, pp. 183–191.

To increase the supply of physicians, dentists, and nurses to a level at which minimum standards could be met in all parts of the country would require many years of effort. The Commission recommended Federal aid to schools of medicine, dentistry, nursing, and public health for modernizing and expanding their physical facilities and for helping meet operating costs. Federally supported scholarships for students in the health professions were also recommended, as were special programs to encourage Negroes to enter work in the health field. The Commission stressed the need for more efficient use of existing professional personnel through better organization of practice, greater delegation of tasks to auxiliary workers, and other means. It cited specific shortages in certain paramedical fields.

8. Mobilization and Health Manpower, 1955 [7]

This report summarized some of the more important findings of the Health Resources Advisory Committee of the Office of Defense Mobilization on health resources and potentials in the United States, and the effects of military mobilization on specific sectors of the whole. The Committee foresaw a declining ratio of physicians and dentists to population by 1960, and many unmet demands for nurses. Despite improved utilization of health personnel by the Armed Forces, military requirements continued to be high in relation to those of the civilian population. If the mobilization remained at announced levels, the existing doctor draft law would meet military needs for physicians, although it would not maintain the present ratio of dentists to troops. If mobilization increased substantially, the protection of civilian health would become a matter of serious concern. Among the areas of greatest need would be medical and dental school staffings, hospital staffing, public health activities, and civil defense programs.

9. Mobilization and Health Manpower: Report on Paramedical Personnel [8]

The primary findings of the Health Resources Advisory Committee's subcommittee on Paramedical Personnel in *Rehabilitation and Care of*

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[7] "Mobilization and Health Manpower," report to the Director of the Office of Defense Mobilization by the Health Resources Advisory Committee. January 1955, 50 pp.

[8] "Mobilization and Health Manpower: II." A report of the Subcommittee on Paramedical Personnel in Rehabilitation and Care of the Chronically Ill. Report to the Director of the Office of Defense Mobilization by the Health Resources Advisory Committee. Washington, D.C., U.S. Government Printing Office, January 1956. 87 pp.

the Chronically Ill, which compiled extensive data on supply and resources of paramedical personnel, were as follows:

1. An undetermined number of Americans suffering from physical disabilities and chronic illness were in need of services provided by physical therapists, occupational therapists, social workers, clinical and counseling psychologists, speech and hearing therapists, rehabilitation counselors, and nurses. Identifiable trends indicated that this number would increase.
2. There were not enough paramedical personnel of the types indicated to meet existing needs or expected future needs.
3. The supply of personnel and the level of their training did not constitute an adequate mobilization base.
4. Support to increase the supply of such personnel had been recognized as a Federal responsibility, with the program carried out mainly by the Office of Vocational Rehabilitation and the Public Health Service.
5. Federal programs of aid for training were soundly conceived and well administered.
6. No new Federal legislation directed toward increasing the national supply of paramedical personnel was needed at that time.
7. The responsibilities of the Federal Government in aid for training to meet national needs and provide a mobilization base could be achieved through continuing and increased support of existing Federal programs.
8. Existing Federal aid for the training of paramedical personnel could be substantially increased in case of a national disaster within the framework of ongoing programs.

10. Surgeon General's Consultant Group on Medical Education (Bane Committee), 1959[9]

Requested to answer the question "How shall the Nation be supplied with adequate numbers of well-qualified physicians," the Consultant Group examined various factors affecting physician need (geographic distribution, changing patterns of medical practice, growth of specialization, urbanization, the problem of aging and chronic illness, etc.) and found indications of increasing need and demand for medical services. But the challenge of just maintaining present levels of physician supply over the next 15 years was so great that it would be of little help to develop a more sophisticated index of need.

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[9] "Physicians for a Growing America," report of the Surgeon General's Consultant Group on Medical Education. PHS Publication No. 709. Washington, D.C., U.S. Government Printing Office, 1959.

As a minimum goal for 1975, the Consultant Group set the maintenance of the 1959 ratio of 141 physicians per 100,000 population. To reach this goal would require almost a 50-percent increase in the output of medical schools by the end of the period. Existing schools would need to be expanded, and 20–24 new schools established. These estimates were based on the assumption that there would be a continued influx of foreign-trained physicians.

Obstacles to the desired expansion of medical schools included the high cost of constructing new teaching facilities, the rapidly rising operating costs of the schools, and the heavy expense to the student of a medical education. The Consultant Group concluded that the Federal Government should help overcome these obstacles by providing matching grants for the construction of teaching facilities, through various contributions toward basic operating expenses, and through educational grants-in-aid to medical students, among other forms of assistance.

Although the Consultant Group was charged to consider needs in the field of medical education, it recognized that physicians cannot carry out their responsibilities without the help of a growing number of associates with a variety of skills and educational preparations. A summary statement on dentists was prepared, pointing to the need for an approximately 75 percent increase by 1975 in the number of dental school graduates, just to maintain the present inadequate ratio of dentists to population. The Consultant Group also saw urgent need for expansion of the educational capacity for nursing and the other health professions.

11. Surgeon General's Consultant Group on Nursing (Eurich Committee), 1963 [10]

As a basis for advising the Surgeon General on the appropriate role of the Federal Government in assuring adequate nursing services, the Consultant Group on Nursing estimated that 850,000 professional nurses would be required to meet the needs of the Nation in 1970. This estimate was derived from qualitative judgments as to needs in general hospitals, psychiatric hospitals, nursing homes, public health, occupational health, the military services, private duty, physicians' offices, nursing education, and other areas of service.

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[10] "Toward Quality in Nursing: Needs and Goals." Report of the Surgeon General's Consultant Group on Nursing. PHS Publication No. 992. Washington, D.C., U.S. Government Printing Office, 1963.

In view of limits on the potential supply of students and the potential capacity of the Nation's nursing schools, the Consultant Group recognized that needs as defined above could not be met in the near future. A feasible goal for 1970 would be to increase the supply of professional nurses to about 680,000. Of these 95,000 should have at least a baccalaureate degree and another 25,000 should have graduate preparation. To meet this goal would require a 75-percent increase in the number of nursing school graduates between 1961 and 1969.

Areas in which Federal assistance could be of particular and immediate significance were in stimulating recruitment to nursing schools (aid for recruitment programs, student loans, and scholarships), assisting nursing schools to expand and improve their educational programs (construction grants, planning grants, project grants for curriculum improvement, reimbursement for partial costs of educating federally supported students), assisting professional nurses to get advanced training (expanded traineeship program), promoting better utilization of nursing personnel, and providing increased support for research.

The Consultant Group stressed the need for a well-organized educational structure for the training of nurses, consistent not only with the needs for nursing service but also with the general patterns of education in the United States. The Consultant Group recommended that a study, which might require 5–10 years, should be made promptly of the present system of education in relation to the responsibilities and skill levels required for high-quality patient care.

12. President's Commission on Heart Disease, Cancer and Stroke, 1964[11]

Viewing manpower needs for the prevention and control of heart disease, cancer, and stroke as inseparable from manpower needs for medical care generally, the President's Commission concluded that a full-scale attack on these three diseases would require expansion of the entire work force in health services. The lagging physician supply was the most critical element. Shortages also existed across the entire range of health occupations.

Just to maintain our present ratio of physicians to population over the next 10 years would require continued substantial importation of foreign-trained physicians, in addition to planned expansion of medical schools. Maintaining the existing level of supply would not take into account the growing shortage of personal or family physicians having "first contact" with patients. It would not meet increasing per capita demands for health service. It would not provide for any greater effort to deliver the best in modern medicine to those who need it.

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[11] The President's Commission on Heart Disease, Cancer, and Stroke. Report to the President: A National Program to Conquer Heart Disease, Cancer, and Stroke. Vols. I and II. Washington, D.C., U.S. Government Printing Office, 1964–65.

The Commission's Subcommittee on Manpower noted that as of December 31, 1963, 13 States and the District of Columbia had at least 1 physician in private practice for every 1,000 in the civilian population. Taking this ratio as a reasonable measure of need for the remaining 37 States, it was estimated that there was a shortage of 20,000 physicians for private practice at the present time. Even if physician graduates expanded by 25 percent immediately, it would require 10 years to make up this deficit, let alone satisfy other unmet needs.

Because needs for trained health manpower were so great as to be unattainable during the decade, the Commission recommended a twofold program. On the one hand, the greatest efforts should be made to utilize present manpower resources in the most effective way possible. On the other hand, the nation should immediately begin a massive program for the training of additional physicians, dentists, nurses, and other health personnel as rapidly as possible.

Among the Commission's specific suggestions for strengthening manpower resources were increased Federal appropriations under the Health Professions Educational Assistance Act, a new program of support for the creation of 2-year medical schools, project grant support for health careers education and recruitment activities, and Federal scholarships for medical and dental students. The Commission also recommended expansion of Federal support for undergraduate and advanced clinical training in heart disease, cancer, and stroke; more investment in the recruitment and training of health technicians and other paramedical personnel; and development of a Public Health Service health manpower unit for continuous assessment of manpower requirements for health services.

13. Planning for Medical Progress Through Education, 1965 [12]

Although this report was commissioned to provide guidelines for the future development of the Association of American Medical Colleges, the distinguished committee headed by Lowell Coggeshall based its recommendations on a broad and temperate view of health in the United

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[12] Planning for Medical Progress Through Education. Evanston, Ill. Association of American Medical Colleges, 1965. 107 pp.

States. The committee repeatedly stressed the need to change the institutions which serve society so that they remain appropriate to the changing conditions of society itself. In so doing, the committee defined emerging trends in both society and health care whose implications appeared to be particularly important. These trends included scientific advance, population change, increasing individual health expectations, more effective demand for health care, greater specialization in medical practice, increased use of technological advance and equipment; increasing institutionalization of health care, use of a team approach to health care, need for larger numbers of physicians, as well as other health personnel, the expanding role of Government, and the ever-increasing costs of health care.

The committee concluded that not enough physicians would ever be produced to satisfy growing national requirements. For this reason, it was felt "essential that physician productivity be increased through delegation of specific tasks to others." To this end, the committee noted an even greater need for health personnel to support the physician acting as a team leader, and a need to improve the organization and methods for the delivery of health care.

Two conclusions unique to this report were: (1) The need for the university to assume increasing responsibility for education for health and medical sciences; and (2) that unless the medical colleges, through their Association, take aggressive action to provide broader and more positive leadership in medical education, "the initiative may be seized by others—organizations less qualified to make the decisions and take action required to meet the needs and preserve the standards of medical education in the future."

14. National Commission on Community Health Services, Report of Task Force on Health Manpower, 1966 [13]

This Task Force, foreseeing a vast increase in the need for qualified health manpower of all levels of skill in coming years, recommended a series of actions at the local, state, and regional levels, but in large part at the Federal level. It urged effective planning for the recruitment, education, and use of personnel; improved health manpower statistics and information; optimal use of large numbers of allied and auxiliary personnel; increased use of health service administrators; maintenance of quality of personnel; intensified recruitment activities; expansion of existing schools and the establishment of new schools; improvement of the content and quality of the many health curricula; and continued and increased governmental support—especially Federal support—for education for the health services.

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[13] National Commission on Community Health Services. Report of the Task Force on Health Manpower. Bethesda, Md., The Commission, February 1966.

The Task Force was particularly concerned about the need to assure adequate numbers of competent allied and auxiliary personnel. "While each member of the Task Force understandably emphasized the field of his expertise, all were agreed on the urgency of developing and using effectively allied and auxiliary health personnel of many kinds. If this report has any long-term contribution to make, it is hoped that it will be in its emphasis on this approach."

The unusual features of the report were: Stress upon the use of health service administrators, which the committee felt should be drawn primarily from nonphysicians and should be educated in schools of public health; the recommendation that national minimum requirements for licensure of personnel in all the health professions should be established by the Federal Government; the conclusion, similar to that reached by the Coggeshall Committee, that nursing education be carried out primarily in institutions of higher learning (2-year programs in the junior colleges and baccalaureate programs in the universities), and that high quality hospital schools of nursing should continue their training of nurses only for an interim period until the institutions of higher learning are fully geared up for this task; the recommendation that educational institutions must take responsibility to produce environmental health personnel; and finally the conclusion that, although financing for the education of health professions should remain the responsibility of both Government and non-Government sources, the Government support at all levels is the *sine qua non* for producing adequate numbers of high quality health personnel, and that of these Government funds, those from the Federal Government are of disproportionately greater importance.

Appendix VII

Legal Regulation of Health Personnel in the United States

Introduction

Licensure laws governing the health professions and occupations have a critical effect on the supply and use of health manpower. State licensure statutes, enacted under the police power to legislate for the public health, welfare, and safety, are designed to protect the public against unscientific and unethical practitioners. To this end, the statutes define the functions which each occupational group is authorized to perform and specify the requirements of character, education, and training which licensed practitioners must meet. Entrance into practice is further regulated by statutory provisions for approval of educational institutions and examination of licensure candidates. In controlling the continuing eligibility of licensees to practice, the legislatures provide grounds and procedures for renewal, suspension, revocation, and reinstatement of licenses. To enforce these standards, the statutes establish licensing agencies with administrative, adjudicative, and regulatory powers.

Some licensure laws are mandatory in that they require all who practice the profession or occupation to meet the required qualifications for licensure. Mandatory licensure thus assures that defined occupational functions will be performed only by practitioners meeting prescribed qualifying requirements. Other licensure laws, such as nursing licensure laws in some States, are permissive. They do not prohibit unlicensed practice and require licensure only for those practitioners who use certain titles or represent themselves as licensed. Under permissive licensure, public protection depends greatly upon recognition and observance of the distinction between licensed and unlicensed personnel.

Historically, mandatory licensure has frequently evolved from permissive licensure, which in turn has been derived from the self-regulation of various professions and occupations. Thus, as personnel controls are developed and refined, they are also applied more widely and more coercively—first to those who join voluntary professional associations, then to those who seek official licensure, and finally to all who practice the licensed vocation. This process is a continuing one.

Whether mandatory or permissive, State licensure laws are designed to set a floor for qualifications and performance below which no one will be permitted to enter or remain in the profession or occupation. They are the basic but not the sole control over the quality of health manpower. The courts exercise control over the quality of performance of health practitioners through malpractice suits. State and Federal Governments exercise control through licensure of hospitals and other health institutions and through financing of health programs requiring certain standards. Professional and nongovernmental organizations exert controls through accreditation of hospitals, specialty board certification, and approval of training programs. Within hospitals, moreover, there are professional controls exercised by the medical staff organization, such as appointment standards and quality control committees. These nongovernmental standards, often reinforced by incorporation in governmental requirements, are essential to promote maximum standards of excellence for patient care because occupational licensing has traditionally been a mechanism to enforce minimum standards necessary for public protection.

Because licensure statutes purport to set minimum personnel standards, the first objective in this study must be to consider whether the requirements are adequate in light of recent progress in health service. Enormous scientific and technological advances and altered patterns of delivery of personal health care may well necessitate changes in even minimal qualifications in undergraduate preparation, graduate training, and continuing education. A second, related objective concerns the effect of licensure laws upon the development, use, and organization of a variety of health personnel. In the face of vastly expanded effective demand for health service and growing manpower shortages, licensure standards should not unduly inhibit innovations designed to enhance productivity.

The present examination of the licensure of health personnel is based upon these two criteria—adequacy and flexibility for modern conditions and needs. These criteria require consideration of the licensure statutes and the legal issues involved in light of the main features of the health service landscape in the United States: the impact of the information and technological explosion; the growth of specialization and the decline of the general practitioner; the shortage of physicians and allied health manpower in relation to needs and demands; the increasing provision of health services in organized frameworks; the growth of prepayment systems for health service; the spiralling costs of medical care; and the increasing role of government in medical education and the provision of health services.

Chapter I concerns the licensure of physicians and osteopaths and the effect of licensure on unscientific practitioners. Just as the physician is the key member of the health manpower matrix, medical licensure statutes are central to the legal regulation of health manpower. The provisions of the medical practice acts are discussed in detail, and the important issue of delegation of functions is emphasized here and analyzed further in later chapters.

Chapter II concerns legal regulation of allied and auxiliary personnel—professional and practical nurses, physical therapists, clinical laboratory personnel, optometrists, and podiatrists. The various licensure laws are examined for their effect on the scope, quality, and productivity of performance. Here again, the central questions relate to the allocation and delegation of functions among members of the health manpower matrix.

Chapter III concerns the licensure of dentists and auxiliary dental personnel, with particular focus on the impact of licensure regulation on potential expansion of functions of auxiliary personnel.

Chapter IV * concerns legal standards affecting malpractice and their effects upon the rendition of health care. Emphasis is placed on how these standards affect innovations in the delegation of functions and the incorporation of new technologies in patient care. This will be published in the 1967 "Washington University Law Quarterly."

Chapter V * concerns various laws affecting relatively new forms of health service organization, especially institutional and group practice and prepayment plans, since organizational settings directly affect the functions and productivity of health personnel. This will also be published in the 1967 "Washington University Law Quarterly."

The present report deals with personnel engaged in the provision of personal health services. Beyond its scope are licensure regulations of hospitals and other health service facilities. Similarly excluded are personnel engaged in environmental health services—engineers, sanitarians, sanitary technicians, ecologists, toxicologists, and the many others required for the multidisciplinary efforts involved in environmental health protection.

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* Chapters IV and V are not included in this Volume since they will be published in the "Washington University Law Quarterly."

Methodology

This study is based primarily upon the statutory laws of the 51 U.S. jurisdictions—50 States and the District of Columbia—in effect as of September 1967. (Court decisions are, of course, the basic source for ch. IV.) Several sources have been used to amplify the statutes: judicial decisions and attorney general opinions interpreting and applying statutory provisions, secondary summaries of and commentaries upon licensure statutes, and responses to a questionnaire survey of the States conducted by the Council of State Governments for the National Center for Health Statistics of the U.S. Public Health Service. Considerable statutory data are here presented in tabular summaries to facilitate analysis and comparison, but reference to full statutory texts may be necessary for purposes requiring more intensive examination.

Unfortunately, it was not possible, in the time allowed, to conduct an empirical investigation of how the licensure laws operate in practice. Such an investigation would have given significant insights, since examination of the operation of statutes might reveal considerable variations between statutory law and actual practice.

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A comprehensive review of the licensure laws for health personnel is long overdue. The National Advisory Commission on Health Manpower wisely recognized the importance of these basic statutes to overall solutions of many manpower problems. It is hoped that this study may stimulate further efforts to adjust the licensure process to modern conditions and needs in health service.

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Chapter I

Licensure of Physicians

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Chapter I

Licensure of Physicians

A. Medical and Surgical Physicians

Medical licensure laws were enacted in the United States in approximately their present form during the late 19th and early 20th centuries as a matter of public necessity.[1] Protection of the public against quackery, commercial exploitation, deception, and professional incompetence required legally enforceable standards for entrance into and continuation in the medical profession. The State medical practice acts therefore specified both ethical and educational requirements for physicians—requirements relating to personal character, scientific education, and practical training or experience.[2]

The early licensure statutes reflected the recommendations of the Flexner report on medical education, published in 1910, which initiated efforts to raise standards of medical school admission, instruction, and curriculum, to place these schools under the jurisdiction of universities, and to provide full-time faculty and adequate facilities for teaching and clinical experience.[3] The incorporation in medical licensure laws of requirements which proprietary schools could not meet resulted in the closing of diploma mills, as the inadequate medical schools of the time were called. Standards of ethics and competency provided in the early licensure laws were derived from the view of leaders of the medical profession that "medicine should be based on an educational system that was responsive to the needs and the social and scientific status of the country at that time." [4]

Although vast changes have taken place in the social and scientific status of the country since the original enactment of the medical practice acts, no fundamental changes have been made in the statutory standards of professional competence and ethical behavior. In investigating the adequacy of current licensure laws to meet modern scientific and social conditions, this section of the present report examines the most significant features of State medical licensure laws: the scope of mandatory licensure, including the important question of authority for delegations of functions; the nature and role of State licensing agencies; required qualifications for licensure candidates, including accreditation of medical schools; license registration and renewal, and reinstatement of lapsed licenses; recognition of licenses of other jurisdictions; and license suspension or revocation, and reinstatement of removed licenses.

1. Mandatory Licensure

a. Definitions, Scope, and Effect—In all States licensure of physicians is mandatory, and it is therefore necessary for the statutes to define the medical practice from which unlicensed persons are excluded. Although the language of statutory definitions varies considerably, the practice of medicine is universally defined in broad terms which encompass all health service functions.[5] A person who in any way performs, offers to perform, or holds himself out to the public as performing specified functions—e.g., diagnosing, treating, operating, or prescribing for a disease, ailment, pain, or condition—must be licensed as a physician. In addition, almost half of the statutes specifically prohibit the unlicensed use of certain medical titles and degrees. A few definitions are qualified by a requirement that proscribed activities must be performed for compensation.

All medical practice acts provide certain exemptions from the requirement of State licensure.[6] Exempt categories differ among the jurisdictions, but those provided by at least half of the States are as follows: (1) Commissioned officers of the Federal military services, the U.S. Public Health Service, and physicians employed by Federal civilian agencies while performing official medical duties;[7] (2) religious practitioners, including those of Christian Science; (3) licensed practitioners of other health professions;[8] (4) practitioners licensed in other States when in consultation with a State licensed physician; (5) persons rendering emergency services or dispensing domestic remedies; and (6) medical students, interns, and residents. The rationale of these and most other exceptions to mandatory licensure is that the exempt categories consist of practitioners whose qualifications are otherwise assured, and/or who are performing beneficial service under circumstances which do not involve undue danger to the public. Exemptions which meet this standard may be recommended for wider adoption by the State legislatures, and the standard itself may be a useful guide for State officials charged with enforcement of medical practice acts.

In the past, questions concerning unauthorized and illegal practice of medicine have arisen principally in connection with nonscientific healers.[9] Since the main purpose of medical licensure laws is to protect the public against incompetence, quackery, and unscientific principles in the practice of medicine, these statutes have logically served to block fraudulent and deceptive activities of nonscientific healers whose practices prevent or delay proper medical care. Today, well-established policing methods, improved public education, and the joint efforts of Federal and State governments and the medical profession have brought this problem under reasonable control.[10] Future protection against nonscientific healers depends upon continued vigilance in the enforcement of existing legal sanctions, and, in most States, upon reexamination of the legal status of chiropractors.[11]

b. Delegation of Functions—The most significant contemporary questions arising from mandatory licensure for the practice of medicine concern the delegation of functions by physicians to other health personnel. As previously noted,[12] the statutory definitions of medical practice give physicians an unlimited license to perform all functions of health service, even those for which other health personnel may also be licensed.[13] However, the concomitant licensing of allied and ancillary personnel indicates that the statutes do not contemplate all health service to be conducted by physicians—which situation would, of course, be impossible to realize with the present or even projected supply of physicians. Indeed, health authorities now generally agree that the serious shortage of physicians can be overcome only by allocating certain tasks not requiring the judgment and ability of a physician to specialized personnel with fewer skills and less education.[14] The need for such expansion of the professional productivity of physicians seems certain to continue, and even increase, over time. As medicine develops new methods of treatment requiring specialized skills, new functions must be authorized for existing health personnel, and new kinds of auxiliary personnel must be specifically created.

What is the legal basis for these innovations? For example, do the medical and nursing practice acts permit specifically trained nurses, under standing orders from a physician, to administer cardiopulmonary resuscitation by means of a pacemaker machine to patients suffering heart stoppages? [15] For most jurisdictions there can be no certain answers to such questions because legal authorities have not yet resolved the underlying issues. In a few States, however, the answers have begun to emerge from court decisions, attorney general opinions, or legislative enactments. These initial efforts clearly indicate that the legality of delegations of medical functions involves not only mandatory licensure for the practice of medicine, as statutorily defined, but also the scope and effect to be given to: (1) Licenses of allied and auxiliary personnel, (2) prevailing customs of medical practitioners and institutions, and (3) physicians' supervision and control of assisting personnel.

Is most States the only official guidelines for delegation are the functional definitions of allied and auxiliary personnel in statutes which provide for their licensure.[16] But these definitions are often difficult to interpret and apply to new or unforeseen situations—hence the many advisory opinions of State attorneys general on the scope of these licenses.[17] Faced with such uncertainties, the medical and nursing professions have recently adopted interprofessional agreements to clarify accepted customs and practices.[18] For, as a practical matter, delegation of health service functions is predominately governed by prevailing custom and practice. In the few relevant court decisions, however, it has been held that professional custom is no defense for a contravention of licensure statutes.[19] Thus, in the majority of States, the authority of nurses, medical and surgical technicians, physicians' assistants, and other personnel to undertake new functions and to relieve physicians of certain tasks is limited by licensure statutes or is, at best, an open question. Also uncertain are the character and degree of medical supervision required to legitimize such delegations of functions.

Two California cases illustrate the courts' handling of elements of licensure, custom, and supervision in deciding delegation questions. The more recent case, *People* v. *Whittaker*,[20] involved the right of a neurosurgeon to use a trained surgical assistant to assist in brain surgery. The assistant was charged with practicing medicine without a license because he operated a cranial drill and Giegle saw, positioned by the surgeon, to bore holes and excise skull flaps during neurosurgical operations—although he was always within sight and under direct supervision of the surgeon. The surgeon was charged with aiding and abetting an unlicensed person to practice medicine. The jury of a Justice of the Peace Court found both parties guilty of the charges in one instance in which the surgeon had sufficient time to call another physician to assist him but did not try to do so. As a standard for judging the physician's use of an unlicensed trained assistant, working under direct supervision, the following instruction was given to the jury:[21]

> In determining whether acts in this case, if any, performed under the direct supervision and control of a duly licensed physician, were legal or illegal, you may consider evidence of custom and usage of the medical practice in California as shown by the evidence in this case.

The *Whittaker* judgment has been appealed because of its importance as a test of the right of a physician or surgeon to use an extra pair of hands under conditions not constituting a medical emergency. Regardless of the outcome of the appeal,[22] the case is significant for its allowance of prevailing "custom and usage of the medical practice" in the State to determine the propriety of a physician's delegation and supervision of patently medical, but essentially mechanical, functions. Although this standard may seem both sensible and workable, it nevertheless illustrates the difficulties inherent in the courts' attempting, on a case-by-case basis, to clarify policies and promulgate standards. Legal regulation developed through jury determinations of medical custom and usage may produce inconsistencies and uncertainties in the law, may impede innovations in health service, and finally, may not provide adequate assurance of patient safety.[23] In addition, to rely upon medical custom and usage is to abdicate responsibility for the development of legal criteria governing the delegation of medical functions.

In an earlier California case, *Magit* v. *Board of Medical Examiners,*[24] a physician's California license had been revoked for "unprofessional conduct" because he hired unlicensed, foreign-trained anesthesiologists for independent administration of anesthetics in a hospital. In affirming the decision, the California Supreme Court noted that professional nurses might administer general anesthetics under an exception to the medical practice act for the customary functions of licensed health personnel. Similarly, the court indicated that if the foreign graduates had been registered as residents in an approved anesthesiology program, under another exception to the medical practice act for interns and residents, their administration of anesthetics under identical conditions of attenuated supervision would have been permissible. But the court could find no statutory authority for the performance of medical functions by unlicensed anesthesiologists who were not interns or residents. The court did, however, mitigate the penalty, stating that revocation of the physician's license was an abuse of the board's discretion in view of the facts that the anesthesiologists were foreign-trained specialists, that they had previously been similarly employed by a State hospital (under still another exception to the medical practice act for employees of State institutions), and that their authority had been an unresolved legal question.

The *Magit* case demonstrates the strict construction given medical practice acts by the courts. Strict construction of these statutes is justified on the policy grounds that mandatory medical licensure is designed to protect the public against practitioners not meeting legally prescribed standards of ethics, education, and training. According to the *Magit* decision, the performance of medical functions by persons not licensed as physicians and only minimally supervised by licensed physicians is permitted only when expressly authorized by statutory exceptions, as in the case of unlicensed practitioners whose performance of the tasks has been established by custom and prevailing conditions of practice.

Under this approach, primary responsibility for developing legal rules regarding delegation of tasks by physicians to nonphysicians lies with the legislatures rather than the courts. If delegations are judged by strictly construed medical practice acts, they are permissible only to the extent that these medical licensure statutes, reflecting traditional policies of public protection, are expressly modified by exceptions accommodating new policies of increased physician productivity and manpower utilization. For example, the *Magit* case undoubtedly would have been decided differently (or, more probably, would never have arisen) if the California statute's exemption of hospital employees [25] were more broadly phrased to include nonlicensed physicians working in either State or non-State institutions. Such an exemption, distinguishing between independently and institutionally rendered services, deserves further legislative consideration. The safety of patients may be adequately assured by the many institutional safeguards now required for hospital accreditation by the Joint Commission on Accreditation of Hospitals,[26] and such accreditation could be statutorily required for exemption from mandatory licensure.

The licensure statutes of four States—Arizona, Colorado, Kansas, and Oklahoma—provide more general exemptions for delegations of functions.[27] Although these four exemption clauses are similar in purpose, they have significantly different effects because of variations in their phraseology. The Arizona and Oklahoma exemptions apply only to delegations made by physicians, while the Colorado and Kansas provisions also cover other licensed practitioners of "the healing arts." Under the Oklahoma statute, exempt delegations must be made to "a physician's trained assistant, a registered nurse, or a licensed practical nurse"; in the other three States delegations may presumably be made to any person, although in Arizona the delegatee must be "acting in his customary capacity, not in violation of any statute," and in Kansas he must be performing "professional services." Perhaps the most important differences among these statutes occur in their requirements of supervision. An exempt delegation may be performed in Kansas, "under the supervision or by order of or referral from" the delegator, and in Arizona, "at the direction of or under the supervision of" the delegator. The Oklahoma exemption specifies "direct supervision and control," and the Colorado statute requires "personal and responsible direction and supervision."

The latter criteria may well create as many problems as they solve. Without further statutory definitions, their terminology is subject to a variety of interpretations. Terms such as "supervision" and "direction" seem to be used with different meanings in the several statutes. Even within the individual States, considerable judicial decision or executive interpretation seems necessary to determine reasonably certain meanings for the criteria. On the other hand, semantic precision would only complicate problems caused by establishing a single-statutory criterion of supervision to govern all delegations in a State—regardless of variations in the functions to be delegated, the conditions under which delegations are made, the qualifications of delegatees, or under some statutes, the professional status of delegators. Furthermore, in light of the difficulties frequently encountered in amending medical practice acts, statutory criteria may not be sufficiently adaptable to future changes in the organization and requirements of health services and in the utilization and qualifications of auxiliary health manpower.

Because of the many variables—both medical and legal—involved in assessing the propriety of delegations, it is difficult to resolve this issue through either the enactment of a single-statutory standard or the accumulation of case-law criteria. Ideally, the problem warrants a tripartite solution: First, broad statutory provisions in which the legislature strikes a balance between policies of strict construction and manpower utilization; second, detailed regulations in which a specialized administrative agency applies legislative policies to health service practices and needs; and third, an adjudicative process in which the administrative agency, the courts, or both, may construe and enforce the statutes and regulations. Early consideration of such a solution is necessitated by the real possibility that, until the issue of delegation is clarified, new and desirable utilizations of health manpower may be inhibited by uncertainties regarding physicians' liability in disciplinary actions,[28] civil judgments,[29] or criminal penalties.[30] Facilitating implementation of the suggested solution is the fact that every State already possesses a governmental agency charged with administration of its medical practice act.[31]

2. Licensing Agencies

The licensure statutes of all States provide for the establishment and operation of official licensing agencies to regulate admission to and continuation in medical practice. The authority, composition, and procedures of these agencies determine to a considerable extent the manner in which licensure laws are administered, and thus have an important influence on the qualification and use of physicians.

Medical licensing boards, as primary creations of the medical practice acts, evolved historically to protect the public against incompetence, quackery, deception, and unethical practices. Their function is to assure compliance with minimum qualifications specified in the statutes by supervising the licensure process and policing the practice of medicine. They are empowered to determine the eligibility of candidates for licensure (including review of character and moral fitness, assessment of educational qualifications, administration of examinations, and approval of postgraduate internships); to accredit or approve medical schools; to issue, register, and renew medical licenses; to decide the recognition to be given to licenses of other jurisdictions; to make administrative rules and regulations concerning professional standards; and to suspend, revoke, and reinstate licenses in disciplinary proceedings.

a. Composition of Board—State Boards of Medical Examiners or equivalent agencies range in numbers of members from four to 16, with an average membership of about eight.[32] Physicians comprise the largest number of members, constituting the entire board in 29 States and a large majority in most others.[33] In 16 jurisdictions the membership includes one or more members of other professions or occupations licensed by the same board—osteopaths, chiropractors, chiropodists, veterinarians, dentists, etc.[34] Thus, the vast majority of States require that all members of the board be practicing physicians or other professionals regulated by the board.

The statutes of seven States provide for one or two public members of the board; i.e., persons other than practitioners licensed by the agency. In six of these States, the public members are State officials.[35] One State requires the appointment of a public member who is not a State official.[36]

b. Selection of Board Members—In the great majority of States, the Governor appoints the Board of Medical Examiners or its equivalent from a list of licensed physicians recommended by the State medical society.[37] In eight States appointments by the Governor require the advice and consent of the senate. Even in those few States in which the licensing authority is not a separate board but an agency of State government having additional functions, appointment is by the Governor or by another with confirmation by the Governor.[38]

In six jurisdictions, designated governmental agencies or officials make the appointments.[39] In contrast, the State medical society has sole power to select members of the board in two States.[40] The most marked variations in methods of selection are represented by Alabama, where the Board of Censors of the State medical society is constituted the Board of Medical Examiners, and by Mississippi, where the State Board of Health performs the licensing function for physicians.

More important than who formally appoints members of the board is the source of recommendations for membership. In 24 States the State medical society recommends physicians for appointment, and in nine States other professional societies or personnel licensed by the same board may recommend one or more members.[41] One State provides for recommendations by the medical society after consultation with the deans of the medical schools of the State;[42] and another State provides for selection of the board by the "medical and surgical faculty" of the State.[43] Thus, in the majority of States, selection of the members of the medical licensure board is determined largely by professional societies, and in only two States is the selection influenced by medical educators.

The Council of State Governments has listed the contentions of those who support legal provisions permitting professional associations to nominate or select members of a licensing board:[44]

> (1) They (the legal provisions) are necessary safeguards to prevent the positions from being used for purposes of political patronage.
>
> (2) They insure the selection of competent, well-qualified individuals.
>
> (3) They guarantee expert understanding of the problems faced by practitioners in the occupation.
>
> (4) Above all, they give the practitioners being regulated a sense of participation in selecting their regulators and thus insure their close cooperation in maintaining high standards of practice.

In the same report, the Council summarized opposing arguments:[45]

> Those who criticize the degree to which private associations play a role in selecting licensing board members emphasize the general principle that government officials should represent the public as a whole, not private groups. They assert that members of licensing boards, when selected by occupational associations, may find their loyalty to the public welfare in conflict with their allegiance to the associations. Many such critics urge that chief executives of the States

should have wider latitude in selecting board members than now prevails. They point out that this accords with a general trend to increase the powers of Governors to appoint the members of their administrations. Applied to the occupational licensing boards, it is asserted, this principle would greatly increase their accountability to the public.

c. Qualification of Board Members—All States require physician members of the medical licensing board to be licensed practitioners.[46] In more than half the jurisdictions, a physician member must have practiced in the State for a specified time, usually 5 years.[47]

Eleven States provide an absolute bar to board membership for faculty members or persons connected with educational institutions.[48] These provisions were enacted with a double purpose: To exclude the possible bias of persons with commercial interest in proprietary schools training health personnel, and to prevent faculty members from exercising any predilection they might have in favor of their own graduates. The first reason is generally sound, since obvious conflict of interests should disqualify persons with a financial or managerial interest in profit-making schools engaged in preparing licensure candidates.[49] This reason no longer applies to medical school faculties, however, and even the second reason is of questionable applicability. In view of the quality of modern American medical schools, their nonprofit character, and their accreditation system, it may no longer be necessary for licensing boards to provide an independent check of licensure qualifications, separate from judgment of academic qualifications.[50] Furthermore, restricting medical school faculty members bars from the Board of Medical Examiners physicians who are eminently qualified to uphold standards of practice and who can contribute to the licensing agency their knowledge of new directions in medical education and research. In recognition of these facts (and also, perhaps, as more States have developed their own medical schools), limitations on faculty members have been repealed in several States.[51] Indeed, one State now has an affirmative provision requiring one member of the board to be a full-time member of the University of Illinois medical school faculty.[52]

Ten States require that board members be selected on the basis of geographical distribution throughout the State.[53] As an administrative provision to facilitate the hearing and processing of disciplinary actions in various parts of the State, the geographical requirement may serve a valid purpose. Such a provision may also be intended to promote liaison between the board and the profession. If, however, the requirement is designed to assure representation of various sectional interests of the profession, then it is questionable. Good medical practice knows no geographic boundaries,[54] and licensing boards are established primarily to be protective of the public, not to be representative of the profession.

d. Status of Boards—In most States the agency licensing physicians is an autonomous agency of the State government. However, in six States the medical licensing board is administratively attached to the State department of public health;[55] and in another 10 States the licensing agencies for physicians are connected to various departments charged with regulation and licensure of other professions and occupations, which may or may not be limited to health fields.[56] Even in this minority of States in which the medical board is attached to a department of State government, the board generally operates independently of supervision or involvement by the department. Thus, the operation of medical licensure boards is usually separate from other health functions of State government. Board members are answerable only to the Governor, who generally may remove them from office only for egregious conduct—incompetence, neglect of duty, or unprofessional or dishonorable conduct. In general, there is no supervision of the operations of these boards except for the power of the courts to review some of their actions upon complaint of an aggrieved candidate or licensee.

The autonomy of medical licensing boards is reflected in the methods used to finance their operations. In 40 States licensing fees support the boards' functions.[57] These fees are either deposited in a separate fund or are deposited in the State treasury but earmarked for the board's use. The other States and the District of Columbia finance the medical board from general revenues as an operational expense of State government.[58]

Despite the administrative independence of medical licensure agencies, only 18 States limit their medical boards to the licensing of physicians, and establish other agencies to license other health practitioners. In the majority of States, the licensing agency for physicians also licenses members of other health occupations.[59] These include both legitimate allied and auxiliary personnel (osteopaths, podiatrists, physical therapists, dispensing opticians, etc.) and, in some States, nonscientific practitioners (homeopaths, chiropractors, drugless healers, masseurs, etc.). Though the policy of licensing nonscientific practitioners is questionable,[60] it is significant that most States have elected to have a single agency license a variety of health personnel, thus to some extent administratively integrating the regulation of health manpower.

As currently constituted and operated, medical licensing agencies are generally adequate for the administration of medical practice acts. The competence and dedication of the boards' memberships usually offset minor defects in the structure and procedure of their operation. As long as medical licensure is limited to its traditional function of prescribing minimal personnel standards necessary for the protection of the public, current legislative trends (such as the repeals of requirements of geographic representation and restrictions on medical school faculty members) should suffice to maintain the efficacy of the licensing agencies. If, on the other hand, it is ever proposed that the licensure mechanism be revised so that it no longer merely enforces minimum standards for public protection, but also promotes maximum standards for public service, then it would be necessary to reexamine the composition, selection, qualifications, and status of the medical boards. For example, if the governmental regulatory process were to assume a larger role in promulgating and administering criteria for the delegation of medical functions to allied and auxiliary personnel,[61] some of the present characteristics of the medical agencies would assume critical importance. Especially significant would be the domination of their memberships by physicians and, in some States, of their selection processes by medical societies; and their administrative detachment from State agencies regulating and planning comprehensive health services and, in some States, from licensing boards governing other health professionals.

3. Licensure Qualifications

All medical practice acts specify the personal and educational training and testing requirements which candidates for licensure must meet. These requirements are reviewed here for graduates of medical schools in the United States and for foreign medical graduates. The present review emphasizes issues in the licensure statutes which have implications for the development and use of high-quality medical manpower.

a. Personal Qualifications—(*1*) *Age.*—Most State statutes require that licensure candidates be over 21 years of age, although some States have no age requirement.[62] In view of the length of medical training in the United States, existing minimum age requirements probably do not delay licensure of qualified physicians.

(*2*) *Character.*—All States require good moral character for medical licensure. This requirement has generally been held by the courts to be negated by conviction of a felony or an offense involving moral turpitude.[63] It is possible that standards specified in the statute for suspension or revocation of licenses may be deemed relevant in defining the good moral character requisite for admission to practice.[64] The paucity of judicial decision interpreting this vague requirement, except in cases of heinous offenses, indicates that licensing boards have wide discretion in defining good moral character as long as they do not act arbitrarily or capriciously.[65] Thus, procedures for contesting a board's interpretation of the criterion are important to protect both the rights of individual candidates and the interest of society in the admission to practice of all qualified candidates.[66] It would be an unsound limitation on medical manpower to bar qualified physicians for characteristics unrelated to professional responsibilities and duties.

(*3*) *Citizenship.*—Full U.S. citizenship is required for medical licensure in 25 States.[67] Prior filing of a declaration of intention to become a citizen is required in another 20 States.[68] [69] Two States modify their full citizenship requirements to allow declarations of intent for Canadians.[70] Six jurisdictions have no citizenship requirements for graduates of United States and Canadian medical schools.[71]

Although the requirement of citizenship for licensure in a health occupation has been upheld as not palpably arbitrary,[72] some legal commentators have contended that citizenship requirements in professional and occupational licensing are of doubtful constitutionality and basically inconsistent with the national policy of welcoming aliens and encouraging them to make their maximum contribution.[73] Licensure laws are constitutional only if they are proper regulations of qualifications to assure competence to practice,[74] and "it is difficult to see any rational connection between citizenship and the appropriate qualifications of the various professions and occupations." [75] Whether or not the requirement is constitutional, citizenship seems an irrelevant and unnecessary restriction upon available medical manpower, as a matter of public policy.

(*4*) *Residence.*—Only one State requires residence in the State as a qualification for initial licensure.[76] In all other jurisdictions, no period of residence in the State is required for U.S. medical graduates.[77] States faced with a considerable influx of physicians, such as California and Florida, rely on stringent reciprocity endorsement policies rather than residence requirements to restrict licensure of physicians from other States.[78] With respect to residence requirements, the medical practice acts erect no barriers to the location and mobility of physicians.

(*5*) *Health.*—Unlike licensure requirements for other health professions and occupations, the qualifications for physicians do not generally specify health requirements. Only one State requires affirmatively that the candidate be "physically and mentally able safely to engage in the practice of medicine." [79] Another specifies that the candidate must be free of active tuberculosis and venereal disease.[80] Although almost all States provide that a license may be revoked because of physical or mental illness under certain circumstances,[81] only a few States provide that a license may be initially denied for these reasons.[82] Health requirements, unlike citizenship requirements, are relevant to a candidate's qualifications as a physician, and to the statutory objective of assuring the safe and effective practice of medicine.

b. Educational Qualifications—The medical practice acts of all the States specify numerous and varied educational, training, and testing requirements for medical licensure candidates. These statutory provisions relate to: (1) Specific course requirements in college and medical school, (2) basic science examinations, (3) graduation from approved medical schools, (4) postgraduate medical education, and (5) licensure examinations.

(*1*) *Specific Course Requirements.*—Requirements in the medical licensure statutes of high school graduation or its equivalent, and of at least 2 or 3 years of collegiate premedical education [83] are merely repetitions of admission requirements of all accredited medical schools in the United States and Canada. Requirements in the statutes of nine States for completion of specific college courses—generally in chemistry, biology, and physics,[84] however, may unnecessarily inhibit innovations in the educational preparation of physicians. In light of changing trends in American medical education and the control of the quality of medical schools through the present system of accreditation, premedical requirements should be left to admission policies of the medical schools rather than dictated by statutes.[85]

With respect to medical education, statutes of only two States specify the content of the medical curriculum in any detail,[86] but 23 States set forth, with varying specificity, the amount of instruction which must be completed.[87] Holdovers from the general upgrading of medical schools that followed the 1910 Flexner report, these detailed requirements should be reexamined in light of more recent developments in medical education and its accreditation. If requirements concerning content or length of the medical curriculum are still deemed necesary, such criteria should be promulgated by regulations of an agency with sufficient expertise and flexibility to keep pace with essential curricular revisions. For the modern temper in medical education requires that—

> medical school curricula must remain under ruthless and unceasing scrutiny; they cannot be permitted to grow by sheer accretion. They must be reviewed at regular intervals by imaginative men who have talent for abstraction and generalization and who are attuned to the great syntheses which occur in both the physical and biological sciences.[88]

(2) *Basic Science Examinations.*—In 23 States and the District of Columbia, a candidate for medical licensure must pass a basic science examination given by a basic science board, separate from the licensing examination and the licensing board.[89] This is an omnibus requirement for a number of health professions and occupations, which is designed to assure a minimum of scientific knowledge on the part of practitioners of the healing arts. A corollary purpose of the basic science examination is to exclude from practice cultists and healers without grounding in science; however, these examinations have not proved an insurmountable barrier to nonscientific practitioners.[90]

Nonstatutory prerequisites for admission to all accredited United States and Canadian medical schools include at least one course in each of the following sciences: Basic biology, inorganic chemistry, organic chemistry, and physics. Medical school instruction in the preclinical sciences has advanced far beyond levels tested by the basic science examinations. In criticizing the requirement of the basic science examination for physicians, the secretary of the New York State Board of Medical Examiners stated: [91]

> * * * (W)e have come to the period in which the curricula of the basic science courses probe so deeply into underlying fundamental scientific knowledge, actually at the molecular level in many instances, that the separation between the various specific subjects becomes artificial.

For modern physicians, the basic science examination is thus an anachronism. It does not demonstrate knowledge of science so well as graduation from an approved medical school, and it does not test such knowledge so appropriately as the medical licensure examination. For in fact, not only do the 27 States without basic science requirements test knowledge of basic sciences in their medical licensure examination, but, of course, so do the other 24 jurisdictions.[92] The basic science examination should therefore be eliminated as a requirement for medical licensure.

(3) *Approval of Medical Schools.*—All States require graduation from an approved medical school as a prerequisite for licensure.[93] Power

to approve medical schools is given to the Board of Medical Examiners or its equivalent in each State, but the statutes of several States specifically require graduation from a medical school approved by the American Medical Association or the Association of American Medical Colleges. Some statutes provide other standards for approval, such as a medical curriculum equivalent to that of the State medical school of the licensing State.[94] In practice, all State licensing agencies accept the accreditations of schools by the Joint Liaison Committee on Medical Education of the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association, whether or not required to do so by statute. With the elimination of proprietary and diploma-mill medical schools, and the development of a national accrediting body for existing schools, it now seems possible for statutory educational requirements to avoid dealing with premedical or medical curricula, and to base their regulation upon graduation from an accredited school.[95]

(4) *Postgraduate Medical Education.*—The internship was established as part of medical education to provide 1 year of supervised clinical experience in a hospital following graduation from medical school. Some 23 years ago only a few States required an internship,[96] but today all but 17 States require some form of internship.[97] Where required, the internship must be an approved program, sanctioned either by the State board or by the Council on Medical Education and Hospitals of the American Medical Association. In three States the internship requirement is discretionary with the board.[98] In two States a rotating internship is required, and two States have other statutory provisions[99] relating to the specific content of educational experience beyond medical school.[100] In two additional States a specified number of years of practice is acceptable in lieu of an internship.[101]

As experience with patient care has been incorporated in medical school curricula through clinical clerkships, and as increasing numbers of physicians continue from internships to specialty training in residencies, the nature and purpose of the internship have come under new scrutiny.[102] The recent growth of medical and scientific knowledge renders impossible the teaching of everything in 4 years of medical school, or even medical school plus internship, so that internship, like medical school graduation, can no longer be relied upon for adequate preparation of physicians. Furthermore, required internships delay effective graduate education by repeating clinical experience that is now obtained in the third and fourth years of medical school. Accordingly, the recent "Report of the Citizens Committee on Graduate Medical Education" (the Millis report) recommends "that the internship, as a separate and distinct portion of medical education, be abandoned, and that the internship and residency years be combined into a single period of graduate medical education called a residency and planned as a unified whole." [103]

Implementation of this recommendation would require modification of many licensure laws to permit the first year of such a graduate program to be accepted in lieu of internship. Only two State statutes currently specify that 1 year of postgraduate training may be substituted for an internship.[104] In some other States, it is possible that existing statutory provisions regarding the internship requirement may be interpreted to allow new forms of graduate medical education in place of an actual internship. Ironically, however, the greatest opportunities to improve postgraduate medical education would seem to exist in the States with only a discretionary requirement of internship or no internship requirement at all. Where necessary, State licensure laws should be amended to permit, if not to require,[105] the substitution of postgraduate educational programs for the internship.

At the same time, consideration should be given to appropriate methods of regulating and accrediting these programs. Existing residency programs are generally designed by teaching hospitals in accordance with requirements prescribed by various nongovernmental specialty certification boards.[106] The adequacy of this procedure for licensure purposes should now be assessed, and the proper roles of governmental agencies, specialty boards, organized medicine, and medical schools and institutions should be determined. Although no U.S. jurisdiction currently requires graduate training beyond the internship as a requisite for licensure, once an appropriate system of accreditation is devised, the licensure statutes could require completion of an approved residency just as 35 jurisdictions now require completion of an approved internship. If medical licensure is to signify the end of supervised preparation and the beginning of independent practice, this amendment of the statutes would most realistically approximate the transformation.

(5) *Licensure Examinations.*—The purpose of examinations for licensure, required in all States, is to test the candidates' medical knowledge, judgment, and skills. Requirements of examinations by a State agency originated in the United States when proprietary medical schools of dubious quality were still in existence.[107] Since all the present medical

schools are of high quality and fully accredited, and since all States now require graduation from such schools, it is questionable whether separate licensure examinations are still necessary. It may well be that greater public protection can now be afforded through an approach analogous to that of the United Kingdom, whereby fitness to practice is assured only through careful accreditation of medical education programs, including postgraduate training. For it is also doubtful that any real test of competence to practice medicine can be obtained from an examination given at the completion of an educational process which no longer produces physicians sufficiently prepared to engage in unsupervised, independent practice of medicine.[108] Examinations can test only candidates' recall of what they learned in medical school, not the complex attributes of fitness and competence to practice medicine. Thus, the examination device should be retained only if it is considered desirable as a check upon medical education or useful as an index of future competence. If, for these reasons, licensure examinations are continued, every effort must be made to assure that the testing instruments are the best that can be devised, and that the examinations demand a uniformly high level of performance by candidates.

Preparation and administration of licensure examinations are the responsibility of the Boards of Medical Examiners or equivalent agencies in all States. Clearly, this is a function peculiarly within the province of physicians, and it is primarily for this reason that the membership of licensure agencies is dominated by physicians.[109] Depending upon the rationale chosen to justify licensure examinations, the occasional exclusions of medical faculty members from the boards [110] are either consistent (if the examination is an independent assessment of past medical education) or inconsistent (if it is a reasonable prediction of probably future competence).

Written examinations for initial licensure are given in all States, and in 16 States provision is also made for an oral or practical examination,[111] although the latter requirements are discretionary with the board in some States. A candidate's performance on an oral examination is not subject to the same objective review as his performance on a written examination, and the statutes of two States deal with the possibility of prejudicial judgment of oral examinations by either requiring written transcripts [112] or by authorizing recording of oral examinations.[113]

In 41 States and the District of Columbia, certification by the nongovernmental National Board of Medical Examiners [114] is acceptable for initial licensure in lieu of the State examination,[115] and many State boards purchase questions prepared by the National Board for use in their own examinations.[116] Two States require an oral examination if the application for licensure is made 5 or more years after National Board certification.[117] No State requires passage of the entire three-part examination of the National Board of Medical Examiners as a condition of licensure, although many medical educators, practitioners, and State board members agree that parts I and II of the National Board examination are the best available tests of medical school education, and that part III approaches more closely than anything yet devised a reasonably valid test of competence to practice medicine. In view of these achievements of the National Board, all States should at least recognize its certification for initial licensure.

The number of physicians certified as diplomates of the National Board could perhaps be increased if more medical schools required students to take the examinations. Present use of the National Board examinations varies among medical schools, but in some schools students may be required to pass part I before being promoted to the junior class, and/or to pass part II before being awarded the M.D. degree.[118] In 1966, 75 percent of the sophomore or senior classes in 66 of the Nation's 85 medical schools took National Board examinations.[119]

c. Foreign Medical Graduates—All but three States have specific statutory authority for licensure of graduates of foreign medical schools.[120] Several States issue to foreign medical graduates a special certificate for limited institutional training or practice.[121] One State sets a maximum limit of 50 licenses a year which may be issued to foreign graduates.[122]

In general, the age, character, and citizenship requirements applicable to graduates of U.S. medical schools [123] also apply to foreign medical graduates. Several States also require a period of residence in the State for foreign graduates,[124] although this is almost never a requirement for U.S. graduates.[125] One State requires that a foreign graduate be recommended by the medical society in the county of the applicant's residence.[126]

Licensure is a process for determining professional competency and should not be used as a substitute for sound international and immigration policies.[127] The only valid special provisions for foreign medical graduates are those related to education, training, and language ability. The object of statutes regulating licensure of foreign graduates is therefore limited to assuring that candidates are adequately educated, with sufficient proficiency in the English language and familiarity with the practice of modern American medicine.

Since no procedures exist for evaluating and accrediting foreign medical schools (except for Canadian schools, the American University of Beirut, and the University of the Philippines), most foreign medical graduates must be evaluated individually and thoroughly in terms of their individual competence to practice medicine. The task of evaluating and verifying individual qualifications and credentials cannot be based upon the quality of a candidate's medical school. The task is eased, however, by the services of the Educational Council for Foreign Medical Graduates (the "ECFMG"—sponsored by the American Hospital Association, the American Medical Association, the Association of American Medical Colleges, and the Federation of State Medical Boards) in establishing standards and administering examinations to determine whether foreign medical graduates are qualified to serve as interns and residents in graduate training programs.

In 40 States and the District of Columbia the licensure law requires an ECFMG certificate as a requisite for licensure, either as the exclusive educational requirement or as one of several requirements for a foreign graduate.[128] Graduate medical education, consisting of either an internship or residency or both, is generally required.[129] In at least six States more than 1 year of graduate medical education in an approved internship or residency is required for foreign medical graduates.[130] Another State statute provides that if an applicant's medical school is not approved, the dean of the medical school of the State university may examine the qualifications of the applicant and advise the board as to whether the applicant has had training equivalent to that required.[131] At least six States also require an existing license to practice from either the country of the applicant's medical school or elsewhere.[132]

The statutes of only two States specifically require proficiency in the English language for licensure.[133] Although language proficiency is tested by the ECFMG examination and may be evaluated by the licensure boards in oral examinations or interviews frequently required of foreign graduates, nevertheless the statutes do not reflect the importance of this qualification.

Since foreign graduates cannot be judged by their completion of an accredited educational process, and since the ECFMG examinations test only competency to perform as hospital interns or residents, an exacting licensure examination is necessary to determine their fitness to practice medicine. The statutes or regulations of all States except three subject foreign graduates to the same examination requirements as U.S. graduates,[134] although the special need for uniformly rigorous and comprehensive testing in these cases could best be met by requiring, instead of sometimes permitting, substitution of the National Board examinations.[135]

4. Registration, Renewal, and Reinstatement of Licenses

Nearly all States require that medical licenses be registered or recorded with a public agency and thus be open to public inspection.[136] Some require registration of the license with the clerk of the county in which the licensee intends to practice, or with some other local official.[137] Other States have statutory provisions that require an official State agency to publish an annual directory of licensees.[138] All registration provisions are designed to provide a public record of physicians licensed to practice medicine in the State. A list of active licenses cannot be maintained, of course, without a system of periodic license renewal.

Some 46 jurisdictions require renewal of medical licenses each year (35) or every 2 years (11).[139] The significant feature of license renewal is not what it entails but what it does not entail. A routine and clerical measure, renewal requires only the signature of the physician and the payment of a nominal fee. No other information is required—no showing of continuing education undertaken or its effect on the physician's skills, and no evidence of the physician's having updated his knowledge and credentials to keep pace with medical progress. Not a single State attempts to prevent educational obsolescence by requiring evidence of further education or professional growth as a condition for maintaining licenses in good standing.

Continuing ability to practice medicine is also potentially involved in the reinstatement of lapsed licenses.[140] In most States, however, the statute requires only an application for reinstatement and the payment of a required fee, which may include a delinquency charge.[141] In one State, if a license has lapsed for 5 years, the physician may be required to repeat the entire licensure procedure, including examination.[142] Another unusual provision requires a retired physician who wishes to return to active practice to demonstrate that he is "physically and mentally able safely to engage in the practice and still possesses the medical knowledge required therefor." [143] This is the only statute which requires evidence of continuing qualifications for reinstatement.

Thus, educational obsolescence is generally involved in the licensure process only when it becomes sufficiently grievous to provide a ground for disciplinary action,[144] and may be recognized by the judicial process only when it satisfies the negligence standard in malpractice cases.[145] Since both protection of the public welfare and preservation of manpower resources require the prevention of educational obsolescence among practicing physicians, the question arises whether the legal process should somehow establish higher standards than those enforced in disciplinary and malpractice proceedings. For the present, nongovernmental agencies, such as medical institutions and professional associations, are acting to prevent educational obsolescence by assessing physician performance in hospitals and by establishing and requiring programs of continuing education and reevaluation.[146] Statutory requirements for license renewal and reinstatement are the logical means of reinforcing these nongovernmental efforts. Despite admitted problems of accreditation, specialty differentiation, and individual evaluation, requirements of formal continuing education as a condition of license renewal are deserving of further consideration by the profession.

5. Recognition of Other States' Licenses

All States except Florida and Hawaii provide some means of recognizing licenses of other States. Physicians licensed in other States and seeking licensure in these two States must take the State board examinations [147] and fulfill all other requirements for initial licensure.

Recognition of other States' licenses in the remaining 48 States and the District of Columbia may be accomplished through endorsement of the existing license or through reciprocity with the licensing State.[148] Theoretically, endorsement requires only that either the qualifications of the licensee or the standards required for licensure in the original licensing State be equivalent to the licensure requirements of the State in which licensure is being sought. Reciprocity has two components—equivalence of licensure requirements in the two States, and recognition by the original licensing State of the licenses of the State in which licensure is sought.[149] As a practical matter, the two terms are often used interchangeably.

In addition to the basic factors of equivalence and reciprocity, the statutes may provide other requirements for recognition—such as a basic science certificate, internship, prior professional practice for a specified number of years, citizenship, State residence, or an oral or practical examination.[150] Although 49 jurisdictions reciprocate with or endorse licenses issued by other States, in 16 of these all endorsements of licenses are at the discretion of the licensing board,[151] and only eight States reciprocate with or endorse the licenses of all other jurisdictions.[152]

Restrictions upon recognition of other States' licenses, like all provisions of medical licensure laws, are constitutionally justifiable exercises of State police power only insofar as they regulate the competence of physicians for the protection of the public.[153] In an era of medical manpower shortages it is especially important that this be the sole criterion for restrictions upon the interstate mobility of physicians. The constitutional test must be applied to existing restrictions which, as noted above, are primarily based upon either a lack of equivalence in licensure requirements or a lack of reciprocity in recognition policies of the States involved.

Equivalence of individual qualifications and licensure standards is clearly related to professional competence and public protection. The most fundamental licensure standards, required by all States, are graduation from an approved medical school and passage of a licensure examination. For the former, equivalence of medical education is assured by national accreditation, which has eliminated substandard medical schools and provided certifications used by all State licensing agencies.[154] For the latter, equivalence of examination performance may eventually be assured by universal requirement and recognition of the examinations given by the National Board of Medical Examiners.[155] In the meantime, States should be free to discriminate against licenses issued by other States on the basis of examination standards inferior to their own.

Even if licensure standards are equivalent, the States should also be able to refuse recognition to physicians originally licensed elsewhere whose ability to practice has been impaired by educational obsolescense or physical or mental infirmities. Similarly, in determining conditions for practice within their boundaries, States may prohibit the entrance of physicians for part-time, semiretired, or semivacation practice, where this regulation is designed to protect the public. There is a real question, however, as to whether States should be free to impose such limitations upon the immigration of physicians licensed by other States, and not require similar standards for continued practice by physicians already licensed in the jurisdiction. Another kind of equivalence is involved here, and its disregard can produce doubts as to whether regulations are protections of patients against incompetent practice or protections of physicians against economic competition. Regulations which establish different, discriminatory requirements for out-of-State licensed physicians may thus lose their constitutionally required "reasonable relationship" to public health, safety, and welfare, and may violate the spirit, if not the letter, of the full-faith-and-credit clause [156] or the commerce clause [157] of the Federal Constitution.

Reciprocity restrictions upon license recognition may also exceed State police power, since the existence or nonexistence of interstate mutuality is entirely irrelevant to a physician's professional competence and licensure qualifications. Although pressures created by the shortage of physicians have seldom effected liberalization of license recognition policies,[158] there are some indications that at least the force of reciprocity requirements is currently yielding to such pressures. Of the 49 jurisdictions which have some provision for recognizing other States' licenses, the licensing agencies of all but six currently have discretionary authority to endorse licenses issued by nonreciprocating States.[159] Two States have recently amended their statutes to specify that their reciprocity requirements are discretionary rather than mandatory.[160] If this discretion is exercised clearly and consistently—as, for example, the basis for regulations establishing conditions under which nonreciprocating States' licenses will be recognized—the effect of reciprocity may not be so objectionable.

6. Suspension, Revocation, and Reinstatement of Licenses

Legal provisions for disciplinary actions against licensed physicians involve balancing the interest of the public in ethical and competent medical practice, and the interest of physicians in continuing their practice without unjust interference. Accordingly, State medical practice acts specify the grounds which must be satisfied for the removal of medical licenses, and the procedures which must be followed in the enforcement of licensure criteria.[161]

a. Grounds for License Removal—Statutory grounds for suspension and revocation of medical licenses can be summarized within three general and somewhat overlapping categories:[162]

(1) *Personal disqualifications*—physical or mental illness or disability, drug addiction, alcoholism, gross immorality, etc.;

(2) *Illegal acts*—conviction of a felony or a misdemeanor involving moral turpitude, violation of narcotics laws, performing or procuring or aiding the performance of an abortion, aiding or abetting an unlicensed person to practice medicine, fraud in obtaining a license, violations of the licensure law or of State public health laws and regulations, etc.; and

(3) *Unprofessional conduct*—improper advertising, fee-splitting, representing an incurable condition as curable, conduct likely to deceive or defraud or injure the public, betrayal of a professional secret, habitually negligent conduct, willful neglect of a patient, gross malpractice, etc.

Despite some general similarity among disciplinary grounds, there is no uniformity among the States in either their incidence or their statement. A 1961 survey, which is still remarkably accurate, found the following statutory configuration:[163]

> Among the States there are more than 90 reasons for the revocation or suspension of a medical license. No one ground, stated in the same words, is to be found in all medical practice acts. Nine grounds are found repeated in 30 or more State laws. These are: Drug addiction in 47 States; unprofessional conduct (whether defined or not) in 45 States; fraud in connection with examination or obtaining a license in 44 States; alcoholism in 42 States; advertising in 40 States; abortions in 39 States; conviction of an offense involving moral turpitude in 36 States; and mental incompetence in 32 States.

(*1*) *General Grounds.*—Complicating this variety are problems of statutory terminology, and the greatest semantic difficulties arise in connection with broad, undefined terms such as "unprofessional conduct," "conduct unbecoming a physician," or "conduct harmful to the public." These terms, especially "unprofessional conduct," are used in most jurisdictions in either of two ways: As a generic category under which specific proscribed acts are listed, with a notation that the category "includes but is not limited to" the listed acts; or as a final miscellaneous ground following a list of more specific disciplinary grounds. In either case, the terms constitute vague catchalls which significantly affect the enforcement of the statutes.

First of all, because of the quasi-criminal nature of disciplinary actions, some courts may invalidate such statutory terms as unconstitutionally vague, even in cases of obvious violations:

> "Unprofessional or dishonorable conduct," for which the statute authorizes the revocation of a license that has been regularly obtained, is not defined by the common law, and the words have no common or generally accepted signification. What conduct may be of either kind remains, as before, a matter of opinion. In the absence of some specification of acts by the lawmaking power, which is alone authorized to establish the standard of honor to be observed by persons who are permitted to practice the profession of medicine, it must, in respect of some acts at least, remain a varying one, shifting with the opinions that may prevail from time to time in the several tribunals that may be called upon to interpret and enforce the law.[164]
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> * * * Doubtless all intelligent and fairminded persons would agree in the opinion of the board of medical supervisors that the act

> charged against the appellant in the case at bar amounted to conduct both unprofessional and dishonorable. But this is not the test of validity of the particular clause of the statute. The underlying question involved in all cases that may arise is whether the court can uphold and enforce a statute whose broad and indefinite language may apply not only to a particular act about which there would be little or no difference of opinion, but equally to others about which there might be radical differences, thereby devolving upon the tribunals charged with enforcement of the law the exercise of an arbitrary power of discriminating between the several classes of acts.[165]

On the other hand, most courts have upheld disciplinary actions based upon these vague grounds, at least in cases of clear and convincing evidence, by applying principles of strict and saving statutory construction:[166]

> In the sections of the statutes dealing with the grounds upon which a license may be revoked, the legislature, has used language specifically defining certain of them, or has used words having a reasonably certain meaning in the law, but it has then added certain general words such as "immoral," "dishonorable," or "unprofessional," as indicating the character of conduct which is a ground for revoking a license. These words in themselves have no significance in law even to a reasonable certainty and might seem to authorize the revocation of a license for acts having no reasonable relation to the underlying purpose of the statute, the protection of the public. Giving these words a broad meaning, it would be difficult to justify the grant to the board of power to revoke a license for any conduct which it might deem to be immoral, dishonorable, or unprofessional * * *. But if we did give to these words so broad a meaning, we would be attributing to the legislature an intent to vest the board with power going beyond the scope of its purposes and to enact a law of at least doubtful constitutionality. We cannot assume that the legislature intended to give expression to such an intent and must, if it is reasonably possible to do so, so construe the word it has used as to make the provision a valid and reasonable one. * * * The words must have been used in the light of the fundamental purpose of the statutes to regulate the professions in the public interest, and they can only be construed as intending to include conduct within their fair purport which either shows that the person guilty of it is intellectually or morally incompetent to

> practice the profession or has committed an act or acts of a nature likely to jeopardize the interest of the public.[167]

It might be expected that this judicial uneasiness and reluctance to enforce nebulous terminology would lead the legislatures or the licensing agencies to promulgate more precise definitions. Instead, however, the result has been found to be "a fear of litigation" which generally discourages disciplinary actions, except possibly when a statute is clear or where the evidence is clear cut.[168] In other words, judicial principles of strict construction are adopted by the licensing agencies, which generally enforce only obvious disciplinary grounds defined in the statutes, or particularly egregious or even heinous instances of undefined "unprofessional conduct." [169] The result is that the disciplinary process of the licensure statutes protects the public only against relatively infrequent and extreme offenses.[170]

This result may well be consistent with policies of limiting licensure laws to the enforcement of minimal standards, and relying upon the self-discipline of medical associations and institutions for further maintenance of professional competence. Regardless of questions concerning the feasibility of these policies,[171] however, their implementation through administrative conservatism based upon predicted judicial restrictions of vague legislative phrases seems a curious subversion of the legal process. For the statutes' general grounds, even those recently enacted, do purport to provide comprehensive discipline through the licensure mechanism, with suspension or revocation justified by:

> Any conduct or practice contrary to recognized standards of ethics of the medical profession or any conduct or practice which does or might constitute a danger to the health, welfare, or safety of the patient or the public, or any conduct, practice, or condition which does or might impair the ability safely and skillfully to practice medicine.[172]

(2) *Specific Grounds.*—On the other hand, the statutory definitions of some specific disciplinary grounds indicate an intent that licensure criteria be less stringent than other legal standards to which physicians may by accountable. For example, while a physician may be civilly liable for malpractice based upon ordinary negligence (failure to exercise the care and skill ordinarily exercised by other physicians),[173] in the 15 States which list malpractice among grounds for licensure discipline, the standard is usually phrased as "gross malpractice (or) repeated malpractice," [174] "gross malpractice or gross neglect," [175] "gross carelessness or

manifest incapacity,"[176] or "gross incompetence."[177] The disciplinary criteria are thus analogous to less stringent criminal standards of gross malpractice, which are usually included in State penal statutes.

Another aspect of this point is illustrated by some recent developments regarding license revocation for performance of an abortion.[178] These disciplinary grounds generally incorporate a State's penal provisions governing abortions. Thus, in most States, where it is a crime to perform an abortion except to save a woman's life, the licensure statute provides for revocation for performance of an "unlawful," "illegal," or "criminal" abortion, or for performance of an abortion except to save a woman's life. In those States in which the criminal law permits an abortion to preserve either the life or health of the woman,[179] the licensure statute is also interpreted less restrictively. In Oregon, although the criminal statute allows an abortion only to save a woman's life, the licensure statute provides that an abortion for a woman whose health is imperiled by the pregnancy, after consultation with and concurrence of another licensed physician, is not a ground for suspension or revocation of a medical license.[180] The Oregon Supreme Court has held that a physician who undertakes such an abortion, with proper consultation, is not subject to criminal prosecution.[181] And in Mississippi, even before the 1966 amendment of the abortion law to permit abortions in cases of rape, the licensure statute had been amended to exempt a medically indicated abortion from the sanction of revocation.[182] Thus, where criminal standards are more stringent than criteria approved by the medical profession, there is some tendency for licensure discipline to follow the latter, which may in turn lead to liberalization of the former.

For many specific disciplinary grounds, however, it is difficult to determine the precise standards, if any, contemplated by the licensure statutes. The grounds are often inadequately defined, and, although the differences may not be reflected in administrative practices, statutory phraseology varies from State to State—for example: "habitual intemperance," or addiction to alcohol to such a degree as to render the physician unfit to practice; "conviction" of a felony or a misdemeanor involving moral turpitude, or "knowing and willful commission" of such a criminal act; "willful betrayal of a professional secret," or simply "betrayal" of such a confidence. These interstate differences may be of minor importance in the discipline of obvious disqualifications and patently unethical practices, but for some grounds, such as mental incompetency, the differences have more serious implications.

Some statutory provisions, particularly those recently enacted,[183] provide for license suspension or revocation only when a physician evidences mental illness or mental incompetence "to a degree and of a character which renders such person unsafe or unreliable as a practitioner," [184] or when any physical or mental disability makes further practice dangerous.[185] Other statutes, however, make admission to a mental hospital a ground for suspension or revocation without specifying inability to practice. The latter provisions, by delaying hospitalization, may endanger the physician and even the public. It seems unreasonable to permit a mentally ill physician to continue to practice while maintaining himself on medication, but to revoke his license if he enters a hospital. While he is hospitalized, the physician is unable to practice medicine in any event. One State provides for automatic suspension of a license in case of voluntary hospitalization exceeding 25 days,[186] but this exception for initial diagnosis or treatment still does not relate the suspension to ability to practice. Another State has a particularly inequitable provision whereby voluntary admission or commitment to a State hospital creates a license suspension, while admission to a private mental facility presumably does not so operate.[187] While these statutes may be prejudicial to physicians, other statutes which authorize suspension or revocation only after a court's adjudication of insanity or incompetency [188] may not provide sufficient protection for the public. Revocation on grounds of mental disability should be related to the physician's capacity to practice and the safety of the public. These provisions also must not inhibit proper medical care for physicians.

Some potential grounds for licensure discipline are conspicuously absent from the statutes. For example, in no jurisdiction is educational obsolescence a ground for suspension or revocation, unless or until manifested as "unprofessional conduct," "gross malpractice," or, in a few States, "gross incompetence." [189] Also, few States have adjusted their disciplinary grounds to changes in the organization of medical practice. Only one statute provides that publication, distribution, and circulation of information concerning physicians by any group organized and existing as a nonprofit insurance plan do not constitute advertising forbidden by the licensure law.[190] The latter provision is significant for the development of consumer-sponsored prepaid health care plans.

b. Procedures for License Removal—(*1*) *Disciplinary Agencies.*—A few States separately administer the issuance and suspension or revocation of medical licenses, and delegate disciplinary authority to agencies other than the licensing board. In five jurisdictions the courts are given exclusive or concurrent power to suspend or revoke medical licenses.[191] The State board or department to which the licensing agency is attached has sole primary jurisdiction for disciplinary actions.[192] In some States where the examining board does not issue licenses, but advises another agency on qualifications for licensure, it, nevertheless, has the authority to revoke licenses.[193] In Delaware disciplinary matters are delegated to the Medical Council which consists of a judge and two physicians.[194] An independent Medical Disciplinary Board is elected by physicians licensed in Washington.[195] With these exceptions, disciplinary authority resides in the same agencies responsible for licensing.[196]

Most arguments for separate disciplinary administration proceed from the comprehensive role that the medical licensing boards play in disciplinary actions. The boards may act as promulgators of regulations, investigators of complaints, prosecutors of offenses, triers of fact questions, and judges of final decisions. This composite role, however, characterizes many regulatory agencies, and the virtues of such agencies—expertise, experience, flexibility, perspective—seem especially appropriate for licensing boards. Even the domination of the boards' memberships by physicians and of their selection by medical societies [197] enhances rather than handicaps their disciplinary role; for licensure discipline must, after all, reflect and reinforce the goals of traditional medical self-discipline:

> * * * (1) to impose a penalty which is just and proper; (2) to develop measures which will exert a deterrent effect upon others who might become involved as well as the offender; and (3) to insure that the potentialities for rehabilitation are present.[198]

Indeed, the Medical Disciplinary Committee of the American Medical Association has recommended that the medical boards consider discipline their primary function:[199]

> The committee would suggest that greater emphasis be given to insuring competence and observance of law and ethics after licensure. Agencies already exist which can prepare and correct written examinations to be given applicants for medical licensure. Additionally, much more reliance can be placed on our medical schools of today. * * * Thus it may be an appropriate time to reappraise the primary function of State medical boards.
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> * * * * * * *
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> * * * It is the recommendation of the committee, therefore, that * * * State boards of medical examiners seriously consider

the advisability and necessity of making discipline their primary responsibility. * * *

(2) *Disciplinary Procedures.*—Especially in light of the extensive powers of disciplinary agencies, procedural safeguards are important to assure full protection of individual licensed physicians. Depending upon whether a license is regarded as a property right or a revocable privilege, all the elements of due process may or may not be constitutionally required in disciplinary proceedings.[200] In most States, however, the licensure statutes provide a licensee with basic rights to receive a copy of the charges against him and prior notice of any hearing thereon, and to have such a hearing at which he may be represented by counsel.[201] In addition, the omission of any of these rights from the licensure statutes may be remedied by State administrative practice acts, where they exist. If these or other rights of due process are not available for initial administrative proceedings, the statutes generally provide for appeal and judicial review.[202]

Under former statutes without guarantees of procedural safeguards, the courts frequently implied them. It has been held that a licensee is entitled to judicial review even without statutory authorization,[203] that the requirement of a hearing implies a requirement of notice,[204] and that a statute is unconstitutional absent a provision for notice and hearing.[205] That the courts still strive to protect licensed physicians' rights is demonstrated by a recent decision of the California Supreme Court granting the right of discovery of evidence to physicians charged with "unprofessional conduct" for having performed hospital-approved therapeutic abortions in cases of maternal rubella. The court extended the right of discovery to the administrative hearing before the Board of Medical Examiners, which it analogized to a criminial proceeding, in order to afford the physicians full opportunity to prepare their defense.[206]

Alert to protect the rights of individual physicians, the courts have also been aware of the impact of procedural requirements on protection of the public. Thus, it has been held that a board's decision was not invalid where all the board members were not physically present to hear the evidence but instead read the record,[207] that a jury trial is not constitutionally required for revocation of a license,[208] and that a trial court was justified in refusing to admit new or additional evidence in mitigation where the evidence could have been offered at the original hearing.[209]

c. Reinstatement of Removed Licenses—Licensure statutes generally provide for reinstatement of suspended or revoked licenses upon evidence that the reason for removal of the license no longer obtains, and that the former practitioner's privilege to practice may safely be restored.[210] Additional evidence may be required; e.g., that the physician is of "good moral character" and has not engaged in practice during the period of suspension or revocation. In some States, in cases of suspension for a definite period of time, reinstatement is automatic at the expiration of the period. But for indefinite suspension or revocation, written application for reinstatement is necessary,[211] and the statutes variously authorize or require a hearing, an oral or written examination, or an interview to determine fitness to resume practice. The statute may allow the board to set terms and conditions for restoration of a license, but, even without such a provision, all boards have wide discretion in determining reinstatements.[212]

Separate provisions in many States govern reinstatement of licenses removed because of mental disability.[213] Generally, two requirements must be satisfied: (1) Removal of any adjudication of mental illness or incompetency, and discharge from hospital; and (2) independent judgment by the board of recovery and ability to practice safely.[214] The latter requirement related to professional competence and pubic safety is in accord with the criteria recommended above for determining removal of licenses on grounds of mental disability.[215]

B. Osteopathic Physicians

Osteopathy began in 1894 as a drugless, nonsurgical system of healing based on a theory that physical ailments result from misalinement of the musculoskeletal system. All the original tenets of osteopathy have since been scientifically disproved, and most have even been rejected by the osteopathic profession.[216] The five accredited osteopathic colleges—located at Chicago, Des Moines, Kansas City, Kirksville, and Philadelphia—have revised their curricula to virtually eliminate mechanotherapy and manipulation as subjects of study, and to include scientific medicine, surgery, pharmacology, and other clinical and preclinical subjects.[217] In 1955 a study committee of the American Medical Association surveyed the osteopathic colleges and found no evidence that osteopathic courses interfere with the achievement of a sound medical education. This survey concluded that "teaching in present-day colleges of osteopathy does not constitute the teaching of 'cultist' healing." [218]

The transformation of osteopathy from cultist healing to scientific medicine is significant because osteopaths comprise more than 4 percent of American medical manpower.[219] The contribution that osteopathic physicians can make to American medical care depends upon standards enacted for their licensure, facilities utilized for their training and practice, and perhaps, eventually, agreements reached for their integration into the medical profession.

1. Licensure Provisions

Although osteopathy has made great progress in the direction of scientific medical practice, State licensure statutes for osteopaths retain some vestiges of its origins as a healing cult. These vestiges may characterize the scope of functions authorized for licensees, the organization and operation of licensing agencies, and/or the qualifications required for licensure.[220]

All States and the District of Columbia license osteopathic physicians. Four States issue licenses for osteopaths to practice only what is taught in schools of osteopathy, but one of these States permits performance of major surgery if the osteopath has taken the same qualifying examination as allopathic physicians.[221] In 18 States osteopaths are specifically prohibited from performing major surgery or using drugs, but in seven of these States the use of drugs or performance of major surgery is allowed if the osteopath has completed certain graduate requirements and in three of these States if he has taken the same qualifying examination as allopathic physicians.[222]

In the other 28 States and the District of Columbia, an osteopath may obtain an unlimited license to practice medicine and surgery and in 18 of these States osteopaths take the same qualifying examinations as allopathic physicians.[223] Nineteen States which permit osteopaths to use drugs and perform major surgery require completion of a satisfactory internship.[224] In two States osteopaths are examined by boards containing no osteopathic members.[225] In 31 States boards containing only osteopaths examine the qualifications of candidates for licensure.[226] In California the osteopathic board, which is composed solely of osteopaths, gives no new licenses,[227] and the board of medical examiners now is the exclusive licensing agency and licenses only M.D.'s.[228] In the remaining States the boards can contain M.D.'s and D.O.'s.[229]

All States require graduation from an acceptable or approved osteopathic college.[230] In general the States rely on the American Osteopathic Association for accreditation of osteopathic schools, but as a matter of practice some States boards inspect osteopathic schools independently.[231] All the osteopathic colleges in the United States are approved by the American Osteopathic Association, and all require high school diplomas and collegiate education for admission.[232]

Federal funding is now available to facilitate the improvement of osteopathic colleges, but there is no requirement that these schools must meet the accreditation standards of the AMA–AAMC Joint Liaison Committee in order to qualify for Federal financial assistance.[233]

As a condition of renewal of their licenses, 12 States require osteopaths to furnish evidence of completion of a 1- or 2-day refresher course.[234] These provisions, unique among licensure laws for health personnel, were enacted at the instance of State osteopathic associations, which sponsor refresher programs for practicing osteopaths. Although the specific requirements are inadequate to keep practitioners abreast of expansions in medical knowledge, the provisions are sound in principle.[235] They should be made at least as strong as any new continuing education requirements for medical and surgical physicians,[236] and perhaps even stronger, in view of the limitations of osteopathic education and training.[237]

2. Relationship of Osteopaths to Hospitals

Full understanding of the status of osteopaths in the United States requires not only review of the licensure laws but also analysis of the relationship of osteopaths to hospitals. The latter involves clinical training of osteopathic students, accreditation of osteopathic hospitals, and osteopaths' staff privileges in nonosteopathic hospitals.

a. Facilities for Education and Training—Although the licensure statutes for osteopaths ostensibly require educational qualifications equivalent to those for M.D.'s,[238] the weaknesses of osteopathic colleges produce significant differences in actual preparation. Educational limitations of the osteopathic physician may result from: (1) The lack of clinical facilities large enough to provide adequate training, and close enough to osteopathic colleges to permit integrated didactic and clinical education; (2) the shortage of qualified teachers in osteopathic colleges; or (3) the inadequacy of postgraduate education for osteopathic physicians.[239] The first factor is primarily a product of the quality and location of osteopathic hospitals:

> Most of the osteopathic hospitals are too small to provide adequate clinical material and broad undergraduate teaching programs, and the colleges have been forced to send their students to hospitals that are widely separated from them geographically; e.g., Chicago College of Osteopathy makes extensive use of the 400-bed Detroit Osteopathic Hospital in its undergraduate program. This obviously weakens the school's contact with its students and could be quite disruptive of the continuity of the educational program.[240]

The other two factors are closely related to the first. Since osteopathic colleges are not affiliated with universities or university medical centers, they offer neither the same resources for clinical training nor the same attractions for faculty as medical schools. The limited number and size of osteopathic hospitals entail the results of utilizing fewer and smaller hospitals for internship and residency training than is the case for postgraduate training of M.D.'s.[241] Moreover, in nonosteopathic hospitals, internships and residencies are awarded first to M.D.'s and then, if places are available, to D.O.'s.[242]

b. Hospital Accreditation and Privileges—Once an osteopath is licensed, the most important determinant of his status is his ability to admit patients to an accredited hospital. Although osteopathic hospitals may be approved by State licensing agencies and by the American Osteopathic Association, and are eligible for Federal construction grants under the Hill-Burton and Hill-Harris Acts,[243] nevertheless, only hospitals with combined medical and osteopathic staffs may be accredited by the Joint Commission on Hospital Accreditation.[244] For accredited, nonosteopathic hospitals, staff privileges are commonly made contingent upon graduation from an approved medical school, or upon membership in the county medical society. These rules have frequently been contested in the courts by osteopathic physicians.

In a recent New York case,[245] the right of admission to a county medical society was denied to an osteopath who was licensed in New York and had subsequently received an M.D. degree in California after the merger of medicine and osteopathy there. The court held that the medical society, in exercising its right to make membership rules not inconsistent with law, could restrict admission to graduates of medical schools, absent any showing of either economic necessity of society membership or monopolistic practices by the society. This holding is in accordance with the decisions of most appellate courts which have considered the question. The latter courts have generally held that public hospitals may adopt reasonable rules regarding admission to their staffs, and that exclusion of osteopaths does not constitute arbitrary or discriminatory action.[246]

On the other hand, attorneys general in two States have expressed the opinion that osteopaths are entitled to staff privileges in county hospitals,[247] and a similar result has been reached by the courts of at least three other States.[248] This position is illustrated by two decisions of the New Jersey State Supreme Court. The first, *Falcone* v. *Middlesex County Medical Society*,[249] involved an osteopath who had been licensed to practice medicine and surgery by the New Jersey Board of Medical Examiners; had subsequently been awarded an M.D. degree in Milan, Italy, after 7 months' study; and had thereafter served a 16-month, A.M.A.-approved internship in a medical hospital in the United States. As a probationary member of the county medical society, he had staff privileges at two medical hospitals, but when his probationary membership was revoked, his staff privileges were automatically terminated because both hospitals required membership in the county medical society for staff physicians. In his suit to gain admission to the county medical society, the court held that a medical society cannot refuse membership to an osteopath when the effect of this refusal is to exclude him from hospital privileges and thus from the practice for which he was licensed:

> The State has determined that it is in the public interest that graduates of the Philadelphia College of Osteopathy who successfully pass the State board examination be admitted to the practice of medicine and surgery in this State. The State of New Jersey is the appropriate authority for the declaration of public policy in relation to this field and the same may not lawfully be exercised by any independent agency.[250]

The second New Jersey case, *Greisman* v. *Newcomb Hospital,*[251] involved an osteopath's application for staff privileges in a private nonprofit hospital. A bylaw of the hospital requiring staff members to be graduates of A.M.A.-approved medical schools was held to be unreasonable as applied to a licensed osteopath.

3. Merger of Osteopathy and Medicine

In California, medicine and osteopathy have been merged.[252] This accomplishment is the culmination of many years of effort on the part of the California Osteopathic Association and the California Medical Association to effect a single system of medical practice.[253] It suffices here to note the effects of this merger upon the status of osteopathic physicians and osteopathic colleges.

Under the California Legislation, osteopathic licenses are no longer issued.[254] Since 1962 all graduates of the California College of Medicine, the former osteopathic college, have been awarded M.D. degrees.[255] All living licensed graduates of this and other osteopathic schools have also been given an M.D. degree, if they would accept it, under a "grandfather" clause whereby they agreed to cease identifying themselves as osteopaths. [256] This procedure merged into the regular medical profession all but 400 of the 2,250 doctors of osteopathy practicing in California.[257]

The Board of Medical Examiners is now the licensing agency for all physicians. The Board of Osteopathic Examiners exists only to monitor the remaining licensed osteopaths in the State.[258]

An integral and essential term of the merger was an agreement to transform the California College of Osteopaths into the California College of Medicine, a regular medical school accredited by the Joint Liaison Committee on Medical Education.[259] For a time after the merger agreement between the osteopathic and medical associations, the California College of Medicine operated as an independent institution with financial support from the two professional associations. In 1965 the college became a medical school of the University of California, and it is now the fully accredited medical school of the University of California, Irvine.

Another term of the merger agreement related to membership of former osteopaths in the California Medical Association. It was agreed that the State medical association would direct its efforts toward admitting former osteopaths into existing county medical societies. Until such admission could be accomplished, a special medical society was created as a professional base for these physicians.[260]

Problems of specialty status and interstate recognition are more difficult to resolve. Former osteopathic physicians certified as specialists by osteopathic specialty boards are not eligible for certification by medical specialty boards, since they have not graduated from approved medical schools or completed approved internships and residencies. The same requirement of graduation from an approved medical school blocks the recognition by other States of California medical licenses issued to former osteopaths.[261] Thus, full medical licensure of these osteopathic physicians is operative only in California.

In the State of Washington, negotiations are under way to effect a merger of osteopathy and medicine similar to that in California. The Washington State Board of Medical Examiners has approved an M.D. degree awarded by an osteopathic college, and the Washington State Medical Association voted in 1967 to amalgamate with those osteopaths who wish to give up sectarian practice and become part of the medical community devoted to scientific medical care.[262] In other States the Committee on Osteopathy and Medicine of the American Medical Association is exploring the possibility of integrating the two professions, but the trend toward merger has not entirely eliminated interprofessional rivalry and resentment.[263]

C. Chiropractors and Other Cultists

Medical cultism involves the practice of purported "healing" through methods or according to theories which do not have a scientifically accepted foundation.[264] Although chiropractic is not the only existing cult, it is the only one which still constitutes a significant hazard to the public. Osteopathy, which in its origins was similar to chiropractic, has progressively incorporated the rigors of medical science and is currently being integrated with scientific medicine.[265] Homeopathy has also been transformed and merged into legitimate allopathic medicine. Naturopathy and napropathy are rapidly disappearing by attrition. On the other hand, recent estimates place the number of chiropractors practicing in the United States between 14,360 and 35,000, and the number of patients treated by chiropractors as high as 3 million a year.[266]

1. The Cult of Chiropractic

Chiropractic had its origin in an alleged cure of deafness by a back-cracking performed in 1895 by D. D. Palmer, an Iowa grocer and "magnetic healer." [267] Subsequent growth of the cult's dogma and practice has been narrated so often [268] that it need only be summarized here.

Chiropractic is represented by its adherents as a complete and independent healing art which can prevent and cure all human disease.[269] The basic tenet of chiropractic is that diseases are caused by a dislocation or "subluxation" of the vertebra in the spine.[270] This subluxation, it is alleged, is accompanied by a narrowing of the apertures between the vertebra, which exerts pressure upon the nerve branches issuing from the spinal cord, and supposedly results in disease in parts of the body activated by the pinched nerves. Chiropractic treatment is to reduce the subluxation, thereby relieving pressure on the nerves, aiding the return of "nerve force," and purportedly curing the patient's illness.[271]

Medical authorities unanimously agree that chiropractic has no validity.[272] The cult's theories have never been supported by objective evidence, and they have been thoroughly refuted by medical science.[273] Besides considerable economic consequences, the dangers inherent in this healing cult are twofold. First, chiropractic treatment frequently delays proper and effective medical care until it is too late.[274] Second, chiropractic treatment often produces actual physical damage to patients.[275] Ideally, therefore, the statutes should be repealed to remove the cult's shield of legitimacy. Realistically, however, since repeal is unlikely in light of the power of the chiropractic lobby,[276] suggestions are made here for improvements in statutory formulation and enforcement. But it should be recognized that no matter how high they are set, no matter how strictly they are enforced, licensure standards cannot redeem the scientific invalidity of chiropractic. Moreover, increased official attention to licensure provisions can only lend credence to public misconception regarding chiropractors.

In light of these facts, the only legal issue regarding chiropractic is how best to protect the public from its dangers. The goal of licensure laws for health professions and occupations, as previously noted,[277] is to permit only those who are properly qualified by their education, training, and ethics to provide particular kinds of health care. Mandatory medical licensure laws have significantly contributed to the elimination of cultism, quackery, and inferior medical education.[278] However, there is one paradoxical exception to this accomplishment—the licensing of chiropractors.

2. The Legal Status of Chiropractic

a. Licensure

> Among the many triumphs of chiropractic, none is more remarkable than its achievement of licensure status in all but three States * * *. The first licensing act was passed by Kansas in 1913. By 1915, five States had such laws; by 1925, 32 * * *. Legislators in most of the remaining States, caught between the clear fact of the falsity of chiropractic practice and belief and the equally clear fact that chiropractors enjoyed licensure in more than half of the States, threw up their hands in embarrassed confusion. Most decided that the lesser evil was to license the cult and thus at least bring it under regulation.[279]

The rationale for mandatory licensure of chiropractors—in all States except Louisiana and Mississippi—is to limit chiropractors' functions to a sphere in which they are supposedly qualified, to assure that they meet specified educational requirements, and otherwise to control their activities. The following review of selected features of licensure statutes demonstrates that these goals have not been realized.

(1) *Definitions, Scope, and Effect.*—Mandatory licensure statutes provide varying definitions of the practice of chiropractic.[280] Several statutes describe the peculiar theories of chiropractic, but most define its practice in terms of the particular methods used by chiropractors. Although these definitions differ considerably in specific details, all are generally designed to confine chiropractors to manual manipulation or mechanical adjustment of the spinal column and to exclude them from the prescription of drugs, the performance of surgery, or the administration of other medical therapy. Some statutes, however, either define or allow

chiropractors to practice chiropractic "as taught in chiropractic schools or colleges" [281] or "in accordance with the method, thought, and practice of chiropractors." [282] The latter phrases, unless restrictively interpreted by licensing boards or by the courts,[283] may open the door to the full practice of medicine except for major surgery.[284] For chiropractors have proclaimed their opposition to definitional constraints upon their practice:[285]

> There is no special merit in having any single definition of chiropractic, for any such would tend to straightjacket [sic] the educational process * * *. I would urge avoiding any narrow limiting of the scope and definition of practice which can only tend to prevent growth and understanding. At work is the pragmatic factor * * * where the scope of practice is determined by practitioners in their offices.

Because of this tendency of practicing chiropractors to expand the actual scope of their functions, a special burden is placed upon State legislatures to specify prohibited activities,[286] and upon State licensing agencies to enforce such proscriptions.[287]

In most jurisdictions where they are licensed, chiropractors are permitted to use the titles of "doctor" [288] or "physician." [289] Some statutes, however, limit licensees to the title "doctor" or the prefix "Dr.," which must be accompanied by the words "chiropractor" or "chiropractic" or by the letters "D.C." [290] These titles only increase the possibilities of public confusion created by chiropractic licensure.[291] More particularly, designations of chiropractors as having achieved doctorate degrees seem to misrepresent the nature of chiropractic education.[292]

(2) *Educational Qualifications.*—Chiropractic education and training are appallingly inadequate, as has been well documented by both independent [293] and chiropractic [294] studies. There are currently 12 schools of chiropractic recognized by the two chiropractic associations, but none is accredited by any agency recognized by the National Commission on Accrediting or the U.S. Office of Education, and no school has full accreditation even by the American Chiropractic Association or the International Chiropractic Association. The faculties of these schools are poorly qualified, and the ratio of faculty to students is extremely low.[295] Admission requirements, although also low, are dubiously enforced. A study of actual admission applications showed that chiropractic schools do not observe their own admission rules, and admit students with less than high school educations and questionable credentials.[296]

Licensure statutes which specify educational attainments prior to admission to chiropractic schools are about evenly divided between requirements of high school graduation or its equivalent and requirements of 2 years of college.[297] For chiropractors, however, perhaps the most significant licensure requirement is passage of basic science examinations in jurisdictions where they are required.[298] In those States in which the same examinations are given to medical and chiropractic students, and the examinations are uniformly graded by the same board, an average of 81.4 percent of all physicians pass their first examination, whereas an average of 84.5 percent of chiropractors fail.[299] Chiropractic students show improved performance on examinations separately administered and graded by boards of chiropractors,[300] so that, nationally, about a third of them pass this test of nonclinical scientific knowledge.[301] However, basic science requirements, like other licensure standards, may be subverted through licensure by interstate reciprocity between "tough" and "easy" jurisdictions.[302] Similarly, since chiropractic licensure is entirely a 20th-century creation, a substantial number of chiropractors are insulated from such standards by "grandfather" clauses which exempt chiropractors already (and usually illegally) in practice when licensure statutes were passed.[303]

(3) *Alternate Licensure.*—The experience of the last half century with attempts to control chiropractic through licensure laws leads to the conclusion that more effective safeguards are needed.[304] The Louisiana Medical Practice Act may well serve as a model. Basically, the Louisiana licensure statute prohibits the practice of chiropractic unless the practitioner is also a medical doctor.[305] This requirement provides a more effective safeguard than licensure of chiropractors because it assures that the practitioner will possess the education and training necessary to understand his diagnosis and prescribed therapy in terms of medical principles as well as those of chiropractic. Medical education and training should be required of adherents to chiropractic because:

> There should be no such thing as limited education and training when one is dealing with human illness. You cannot limit the extent to which a disease process or an ailment will affect the human body. The person who assumes the responsibility for treating human beings must be prepared to treat the whole person. He must be qualified to provide the care of the whole person. He cannot restrict himself to just one system of treatment; he must employ all techniques that will be of benefit to the patient.[306]

b. Other Regulation and Recognition—With similar reasoning, a few courts have held chiropractors to medical standards of performance in cases of civil criminal negligence:

> If a person undertakes to cure those who search for health and who are because of their plight, more or less susceptible of following the advice of anyone who claims the knowledge and means to heal, he cannot escape the consequences of his gross ignorance of accepted and established treatment of diseases * * *.[307]

Chiropractors may also be subject to the same State and municipal public health regulations which apply to physicians. Most chiropratic licensure statutes so provide, and require or permit licensed chiropractors to execute various health reports and certificates.[308] These provisions usually include death certificates and four States specifically include birth certificates.[309] On the other hand, chiropractors are prohibited by statute from signing any reports or certificates in New Jersey,[310] birth or death certificates in Maryland,[311] and birth certificates in Tennessee.[312] Although most statutes do not deal with hospital privileges, the North Carolina statute gives licensed chiropractors access to public hospitals,[313] and in North Dakota these licensees may practice in any public or private hospital or other institution * * * when requested so to do by any patient or the guardian of any patient.[314]

Chiropractic has achieved an impressive array of other legal and official recognitions. For example, Federal funds are available to chiropractic students and practitioners under programs established by the Social Security Act (but no Medicare or Medicaid), the U.S. Employee's Compensation Act, and the GI bills of rights.[315] In addition, the U.S. Bureau of the Budget classifies chiropractic as one of the four major healing professions; the U.S. Immigration Service admits foreign chiropractic students outside of quotas; the Selective Service Act has permitted the deferment of chiropractic students;[316] and the Internal Revenue Service permits income tax deductions for chiropractic fees.[317] Chiropractic services qualify for indemnification under most State workmen's compensation acts, and under a great many insurance policies.[318] These official recognitions of chiropractic tend to promote chiropractic rather than limit its scope and effect, which is the premise of licensure. The basic assumption of licensure of chiropractors—that licensure facilitates regulation—should be reexamined.

SUMMARY AND CONCLUSIONS

Licensure laws clearly affect the delivery of medical care by physicians. By setting minimal qualifications for entering into and remaining in the medical profession these laws affect educational curriculums, approval of educational institutions and programs of graduate education, delegation of responsibilities to allied and auxiliary personnel, geographic mobility, and substantive and procedural rules governing actions for violation of these minimal standards.

This study of licensure laws affecting physicians, osteopaths, and chiropractors indicates, among other things, that:

1. Current statutory provisions impose constraints on medical school curricular innovations;
2. Specific statutory requirements restrain needed developments in graduate medical education, such as elimination of the internship as a separate entity and substitution therefor of appropriate programs of graduate medical education integrated with undergraduate medical education;
3. Initial licensure examination requirements of the States do not measure many of the qualities relevant to fitness to practice and are not necessarily relevant to current goals of undergradaute medical education;
4. Legal requirements for programs in continuing medical education to prevent educational obsolescence are absent;
5. Incomplete interstate recognition of medical licenses results in barriers to geographic mobility of physicians;
6. Licensure requirements for foreign medical graduates are not generally geared specifically to fitness to practice high quality American medicine;
7. Delegation of tasks to allied and auxiliary personnel is governed by statutes which may be restrictive, ambiguous, or unrelated to accepted custom and usage;
8. Statutory interpretations relevant to delegations of tasks by physicians to allied and auxiliary personnel are not always based on the realities of the delivery of modern medical care;

9. Osteopaths cannot, under present laws, be integrated fully into the practice of medicine so as to permit their addition to the pool of physician manpower; and

10. Attempts to control unscientific schools of practice or cultism by licensure cannot give unscientific practices a scientific basis but can endanger the public by giving unscientific schools, such as chiropractic, protection through the sanction of law.

Resolution of these problems will require legislative, rather than judicial action. Judicial action permits resolution of problems only on a case-by-case basis, with decisions limited to the facts and circumstances of each case. Since licensure laws are quasi-criminal in nature, judicial decisions in these cases are unlikely to result in the establishment of broad principles which would transcend the immediate facts before the courts.

The legislative process, however, can establish broad principles. It can consider facts, evidence, and social policy without the procedural limitations of the judicial process. Moreover, it can delegate many interpretative functions to the administrative process in which the tribunals have both expertise and flexibility.

Among the many problems presented by the medical licensure laws, without question, the issue of delegation of tasks is a highly significant, if not the most significant, problem requiring resolution. It involves not only the medical profession, but also nursing and other allied and auxiliary professions and occupations. Resolution of the problem of delegation will require consideration of the legal regulation and scope of functions of all the professions and occupations comprising the manpower matrix rendering personal health care. If the legal authority affecting the functions of physicians and other health professions and occupations is amended, the composition of the official licensing agency and its relation to other agencies of government must be reconsidered. Careful study, analysis, and consultation among the health professions will be necessary to develop guidelines for legislative resolution of the issue of delegation and other problems in licensure.

FOOTNOTES

[1] Sigerist, "The History of Medical Licensure," in M. I. Roemer, Editor, *Henry E. Sigerist On the Sociology of Medicine* 308, 317 (1960); Shindell, "The Legal Status of the Physician," 193 J.A.M.A. 601, 602 (1965). For a comprehensive review of the historical evolution of licensure laws in the United States, see generally Shryock, *Medical Licensing in America, 1650–1965* (1967).

[2] For the rationale and justification of licensure legislation, see Introduction, supra.

[3] A. Flexner, *Medical Education in the United States and Canada* (1910).

[4] L. Coggeshall, *Planning for Medical Progress Through Education* 4 (1965).

[5] See app. 1, "Statutory Definitions of the Practice of Medicine."

[6] See app. 2.A, "Statutory Exemptions from Medical Licensure."

[7] The Attorney General of Wisconsin has recently ruled that a physician employed by a Veterans Administration hospital does not have to be licensed by Wisconsin for his service within the Federal hospital, but he must be licensed by the State in order to participate in a rotating training program cooperatively conducted by the VA hospital and a non-Federal hospital. However, requirements for appointment to the VA assured that the physician would qualify for a temporary educational certificate of licensure by reciprocity. Op. Att'y Gen. (Aug. 31, 1966).

[8] For performance by such personnel of functions delegated by physicians and/or authorized by statutes, see ch. 1, § A.1.b; ch. 2.

[9] Cases involving the illegal practice of medicine by nonscientific practitioners are legion. E.g., *Beck* v. *Cooper,* 147 Kans. 710, 78 P. 2d 884 (1938); *People* v. *Hickey,* 157 Misc. 592, 283 N.Y.S. 968, aff'd, 249 App. Div. 611, 292 N.Y.S. 177, appeal denied, 279 N.Y. 788, 18 N.E. 2d 870, aff'd 280 N.Y. 559, 20 N.E. 2d 14 (1936).

[10] For reviews of these efforts, see reports of the A.M.A. Congresses on Quackery, the most recent of which was held in 1966.

[11] For legal regulation of chiropractors and other nonscientific practitioners, see ch. 1, § C, infra.

[12] See note 5, supra and accompanying text.

[13] Licensed physicians may even provide dental service, and several dental practice acts specifically exempt physicians from their application. E.g., Georgia Code § 84–723 (1955); Tex. Rev. Civil Stat. art. 4551b(4) (1960).

[14] See National Commission on Community Health Services, *Health Is a Community Affair,* 77–100, 211–215 (1966).

[15] For an account of the use and benefits of this practice in Standish, Mich., see Los Angeles Times, Nov. 24, 1966, pt. V, p. 3, col. 8.

[16] Licensure of allied and auxiliary personnel is discussed in ch. 2, infra.

[17] See generally ch. 2, infra.

[18] See note 75 and accompanying text, ch. 2, infra.

[19] *Barber* v. *Reinking,* 68 Wash. 2d 122, 411 P. 2d 861 (1966), discussed in ch. 2, § A.1.b., infra.

[20] No. 35307, Justice Court of Redding Judicial District, Shasta County, Calif. (December 1966).

[21] Transcript at 861.

[22] There would seem to be small probability of appellate reversal on the law in this case, since the instructions given the jury were essentially those requested by the defense. Telephone conversation with Robert W. Baker, Esq., District Attorney of Shasta County, Redding, Calif., January 1967.

[23] Compare the difficulties experienced with the so-called "community rule" in malpractice cases, discussed in ch. 4, § IIB, infra.

[24] 57 Cal. 2d 74, 366 P. 2d 816, 17 Cal. Rptr. 488 (1961).

[25] Calif. Bus. & Prof. Code § 2137.1.

[26] See generally American Hospital Association, *Hospital Accreditation References* (1964).

[27] See app. 2.B, "Statutory Exemptions for Supervised Delegations."

[28] See *Magit* v. *Board of Med. Examiners,* 57 Cal. 2d 74, 366 P. 2d 816, 17 Cal. Rptr. 488 (1961), discussed in text accompanying note 24, supra.

[29] See *Barber* v. *Reinking,* 68 Wash. 2d 122, 411 P. 2d 861 (1966), discussed in ch. 2, § A.1.b., infra.

[30] See *People* v. *Whittaker,* No. 35307 Justice Court of Redding Judicial District, Shasta County, Calif. (December 1966), discussed in text accompanying note 20, supra.

[31] Medical licensing agencies are discussed in ch. 1, § A.2, infra. Existing regulatory powers of many of these agencies seem sufficiently broad to authorize their promulgation of rules governing delegation of medical functions.

[32] See app. 3, "Composition of Agency—Total Number" column.

[33] See app. 3, "Composition of Agency—M.D.'s" column.

[34] See app. 3, "Composition of Agency—Other Occupations" column.

[35] Idaho Code § 54–1805 (1947) (Commissioner of Law Enforcement); Ky. Rev. Stat. § 211.040 (1962) (Commissioner of Health); Mississippi Code Ann. § 7024 (Supp. 1964) (Elected by State Board of Health); N.H. Rev. Stat. § 329.4 (1966) (Director of Division of Public Health Services, ex officio); Pa. Stat. Ann. Title 71, § 122 (Supp. 1966) (Commissioner of Professional and Occupational Affairs, and Secretary of Health); West Virginia Code § 30–2A–1 (Supp. 1967) (State Director of Health, ex officio).

[36] Calif. Bus. & Prof. Code §§ 2100, 2101 (one public member who is not a licentiate in medicine, osteopathy, or chiropractic).

[37] See app. 3, "Appointment by Governor" and "Recommendation by Medical Society" columns.

[38] Ky. Rev. Stat. § 211.040 (1962); Mississippi Code § 7024 (Supp. 1964); Utah Code Ann. § 58–1–6 (1953).

[39] District of Columbia Code § 2–109 (1967) (Commission on Healing Arts); Ill. Rev. Stat. ch. 91, § 16b–1 (Smith-Hurd 1966) (Director of Registration and Education); Nebr. Rev. Stat. § 71–117 (1966) (Department of Health); N.Y. Educ. Law § 6503 (Board of Regents); R.I. Gen. Laws § 5–26–2 (Supp. 1966) (Director of Health); Utah Code Ann. § 58–1–6 (1953) (Director of Registration).

[40] Alabama Code Title 46, § 258 (Supp. 1965); N.C. Gen. Stat. § 90–3 (1965).

[41] See app. 3, "Recommendation by Other Professional Societies" column.

[42] Pa. Stat. Ann. Title 71, § 122 (1962).

[43] Maryland Code Ann. art. 43, § 120 (1965).

[44] Council of State Governments, *Occupational Licensing Legislation in the States* 38 (1952).

[45] Ibid.

[46] New York requires only eligibility for licensure. N.Y. Educ. Law § 6503.

[47] See app. 3, "Requirement of Practice in State" column.

[48] See app. 3, "Limitation on Faculty" column.

[49] Compare the unique Nebraska provision that no member of the board may be connected with a wholesale or jobbing house dealing in medical supplies. Nebr. Rev. Stat. § 71–115 (1966).

[50] Of course, the statutes must distinguish between accredited medical schools and schools of chiropractic and other such educational institutions. The exclusion of faculty members of proprietary institutions and institutions offering degrees not recognized by the U.S. Office of Education is sound policy.

[51] See, e.g., Ariz. Rev. Stat. § 32–1402 (Supp. 1966) which replaced former sec. 32–1403(D) in 1964. But the repeal in Arizona is almost nullified by the concurrent requirement that board members must have engaged in the full-time practice of medicine in the State for 5 years preceding appointment.

[52] Ill. Rev. Stat. ch. 127, § 60a (Supp. 1966).

[53] Alaska Comp. Laws § 35–3–82 (1949); Ariz. Rev. Stat. § 32–1402(A) (Supp. 1966); Ark. Stat. § 72–602B(a) (1957); Georgia Code §§ 84–902, 903 (Supp. 1966); Idaho Code § 54–1805 (1947); Mass. Gen. Laws, ch. 38, § 1 (Supp. 1966); Mont.

Rev. Codes § 66–1001 (1961); South Carolina Code § 56–1351 (1962); Virginia Code § 54–282 (1967); West Virginia Code § 30–2A–1 (Supp. 1967).

[54] Cf. *Darling* v. *Charleston Community Memorial Hosp.*, 33 Ill. 2d 326, 211 N.E. 2d 253 (1965), in which the Supreme Court of Illinois stated that a physician must exercise care and skill appropriate to the risk, and that the "community standard" can no longer justify less than adequate medical care.

[55] See app. 3, "State Department" column.

[56] Ibid.

[57] See app. 3, "Financing of Agency—Special Fund" column. Special financing of the board's operations may explain the statutory provisions for nominal compensation for board members. Compensation ranges from a low of $5 per diem plus travel expenses in Alaska, Alaska Comp. Laws § 35–3–95 (1949), to a high of $30 per diem plus expenses in Texas, Tex. Rev. Civil Stat. art. 4502 (1966). Per diem rates of $10, $15, and $25 are common for this highly skilled and exacting service.

[58] See app. 3, "Financing of Agency—General Fund" column.

[59] See app. 3, "Other Occupations Licensed by Same Agency" column.

[60] See ch. 1, § C, infra.

[61] See text accompanying notes 28–30 supra.

[62] States without age requirements are: California, Georgia, Hawaii, Idaho, Indiana, Iowa, Minnesota, Mississippi, Missouri, Montana, Nevada, New Mexico, Oregon, Washington, and West Virginia.

[63] E.g., *Hirsh* v. *San Francisco*, 143 Cal. App. 2d 313, 300 P. 2d 177, 185 (1956); *State Bd. of Med. Educ. & Licensure* v. *Simon*, 62 Dauph. 215 (Pa. Ct. C.P. 1951); *Hawker* v. *New York*, 170 U.S. 189 (1898).

[64] Cf. *Hallinan* v. *Comm'n of Bar Examiners*, 65 A.C. 485, 491, 421 P. 2d 76, 81, 55 Cal. Rptr. 228, 233 (1966), in which the California Supreme Court stated:

> Fundamentally, the question involved in both situations is the same—is the applicant for admission or the attorney sought to be disciplined a fit and proper person to be permitted to practice law, and that usually turns upon whether he has committed or is likely to continue to commit acts of moral turpitude. At the time of oral argument the attorney for respondent frankly conceded that the test for admission and for discipline is and should be the same. We agree with this concession. Therefore, in considering the kinds of acts which would justify excluding a candidate for admission we may look to acts which have been relied upon to sustain decisions to disbar or suspend individuals previously admitted to practice.

[65] See Comment, "Entrance and Disciplinary Requirements for Occupational Licenses in California," 14 Stan. L. Rev. 533, 538 (1962).

[66] See note 161, infra.

[67] Alabama, Alaska, Arizona, Arkansas, Colorado, Delaware, Florida, Georgia, Kansas, Kentucky, Louisiana, Missouri, Montana, Nebraska, Nevada, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, South Carolina, Tennessee, and West Virginia.

For full citizenship requirements for licensure by endorsement, which differ only in Nevada, and North Dakota, see app. 5, "Citizenship" column.

[68] Connecticut, Hawaii, Idaho, Indiana, Iowa, Maryland, Massachusetts, Michigan, Minnesota, New Hampshire, New Mexico, New York, Oregon, Pennsylvania, Rhode Island, South Dakota, Texas, Vermont, Virginia, Wisconsin, and Wyoming (at discretion of board).

New Hampshire, New Jersey, and Wyoming provide for temporary licenses to those who have filed declarations. N.H. Rev. Stat. § 329–15 (1966); N.J. Stat. § 45:9–14 (1963); Wyo. Stat. § 33–333(a)(iii) (Supp. 1965). In Rhode Island and Wyoming full citizenship must be acquired in the minimum allowable time in order to obtain permanent licensure. E.g., R.I. Gen. Laws § 5–37–2 (Supp. 1966); Wyo. Stat. § 33–333(a)(iii) (Supp. 1965).

[69] *Medical Licensure Statistics for 1966,* 200 J.A.M.A. 1055, table 11, p. 1068 (1967).

[70] Mont. Rev. Codes § 66–1003 (1962); Nev. Rev. Stat. § 630.160 (1963).

[71] California, District of Columbia, Illinois, Maine, Utah, and Washington.

[72] *Sashihara* v. *Board of Pharmacy,* 7 Cal. App. 2d 563, 46 P. 2d 804 (1935).

[73] Fisher and Nathanson, *Citizenship Requirements in Professional and Occupational Licensing in Illinois,* 45 Chi. Bar. Rec. 391 (1964).

[74] *Dent* v. *West Virginia,* 129 U.S. 114 (1889).

[75] Fisher and Nathanson, supra note 73, at 397.

[76] Hawaii Rev. Laws § 64–3(b) (Supp. 1963) (1 year).

[77] Jurisdiction of the medical licensing agency is not acquired because of the residence or citizenship of licensure applicants, but because of its duty to protect the health and welfare of the people of the State.

[78] See ch. 1, § A.5, infra.

[79] Ariz. Rev. Stat. § 32–1423(7) (Supp. 1966).

[80] Okla. Stat. Title 59, § 493 (Supp. 1965).

[81] See ch. 1, § A.6.a(2), infra.

[82] E.g., Mo. Stat. Ann. § 334.100(11) (1966).

[83] See app. 4.A, "High School" and "College" columns.

[84] E.g., Calif. Bus. & Prof. Code § 2192 and app. 4.A.

[85] See generally Citizens Commission on Graduate Medical Education, *The Graduate Education of Physicians* (1966); L. Coggeshall, *Planning for Medical Progress Through Education* (1965); Ruhe, *Analysis of Medical Practice Acts of the Various States,* Address to the Federation of State Medical Boards of the U.S., in Chicago, Feb. 11, 1967.

[86] Calif. Bus. & Prof. Code § 2192; Wash. Rev. Code § 18.71.055 (Supp. 1963).

[87] See app. 4.A, "Medical School Curricula" columns; Ruhe, supra note 85.

[88] Gengerelli, "Education in the Sciences," 194 J.A.M.A. 583, 584 (1965).

[89] See app. 4.A, "Basic Science Certificate" column.

For basic science requirements for licensure by endorsement, which differ only in Oklahoma and Vermont, see app. 5, "Basic Science Certificate" column.

[90] See Wright, "The Point of View of Medical Examining Boards" in *Basic Science in Medical Education and in Qualification for the Practice of Medicine* 51, 52 (1966).

[91] Id. at 53.

[92] In 15 jurisdictions the statute establishing the basic science board is sufficiently broad to permit the board to accept examinations of the National Board of Medical Examiners or State medical boards in lieu of its own—Alabama, Alaska, Arizona, Arkansas, Connecticut, District of Columbia, Iowa, Kansas, Minnesota, Nebraska, Oklahoma, Rhode Island, Tennessee, Washington, and Wisconsin.

[93] Iowa, South Carolina, and Texas do not require that the medical school be approved. In Hawaii an acceptable alternative to graduation from an approved medical school is active practice in another State or medical service with the U.S. Army, Navy, or Public Health Service for 7 of the 11 years preceding licensure application. Hawaii Rev. Laws § 64–3(d)(2) (Supp. 1963).

Approved Canadian medical schools are also accepted in all U.S. jurisdictions because they are accredited and approved by the same accrediting body as are American Medical Schools.

[94] E.g., Tennessee Code Ann. § 63–611 (1956).

[95] One problem which the State boards or the national accrediting body may face in the future results from the policy in some States of favoring their own residents in

admission to State-supported medical schools. This policy, although understandable, can have a detrimental effect on the quality of medical students in some cases and could potentially affect the quality of the school as well as the number of graduates. See "Doctor or Dropout," 41 J. Med. Educ. 1134 (1966); Association of American Medical Colleges, 2 Datagrams No. 3 (1965), for correlations indicating that students in medical schools with low expenditures and geographic restrictions have lower median scores on the medical college admission test.

[96] See Sigerist, supra note 1.

[97] See app. 4.A, "Internship" column.

For internship requirements for licensure by endorsement, which differ only in Arkansas and Missouri, see app. 5, "One Year Internship" column.

[98] Ark. Stat. § 72–605(f) (1957); Okla. Stat. Title 59, § 493 (Supp. 1965); Vt. Stat. Ann. Title 26, § 1396 (1967).

[99] New Hampshire and Rhode Island *Medical Licensure Statistics for 1966,* 200 J.A.M.A. 1055 table 10, p. 1067 (1967).

[100] Hawaii Rev. Laws § 64–3(f) (Supp. 1963) (certificate of familiarity with Hansen's disease from State Institution treating this disease); Wash. Rev. Code § 18.71.050 (2)(3) (Supp. 1963) (experience in obstetrics and pathology).

[101] Alaska Comp. Laws § 35–3–85 (1949) (4 years); Nev. Rev. Stat. Title 54, § 630.160 (1963) (7 years).

[102] See generally authorities cited, supra note 85.

[103] Citizens Commission on Graduate Medical Education, supra note 85, at 62.

[104] Ariz. Rev. Stat. § 32–1423(4) (Supp. 1966); N.J. Stat. § 45:9–8(3) (1963).

[105] Cf. Citizens Commission on Graduate Medical Education, supra note 85, at 63: "We recommend that State licensure acts * * * be amended to eliminate the requirement of a separate internship and to substitute therefor an appropriately described period of graduate medical education."

[106] The requirements are described in the annual *Directory of Approved Internships and Residencies* published by the American Medical Association.

[107] See Sigerist, supra note 1.

[108] See generally authorities cited, supra note 85.

[109] See note 33, supra and accompanying text.

[110] See notes 48–52, supra and accompanying text.

It should be noted that college and university faculty members are generally assigned responsibility for administering statutory basic science examinations, and medical school faculty members participate in development of the examinations given by the National Board of Medical Examiners.

[111] Arizona, California, Iowa, Minnesota, Montana, Nebraska, Nevada, North Dakota, Oregon, Pennsylvania, Rhode Island, South Carolina, Tennessee, West Virginia, Wisconsin, and Wyoming.

[112] Ariz. Rev. Stat. § 32–1428(e) (Supp. 1966).

[113] Wyo. Stat. § 33–333(b) (Supp. 1965).

[114] The membership of the National Board includes representatives from the Federation of State Medical Boards of the United States, the Council on Medical Education of the American Medical Association, the Association of American Medical Colleges, the American Hospital Association, the U.S. Armed Services, and the Veterans Administration. In addition, members at large are elected from among leading physicians throughout the Nation. See generally Womack, *The Evolution of the National Board of Medical Examiners,* 192 J.A.M.A. 817 (1965).

[115] The nine States which do not recognize National Board certification for initial licensure are: Arkansas, Delaware, Florida, Georgia, Indiana, Lousiana, Michigan, North Carolina, and Texas. However, Delaware, Indiana, North Carolina, and Texas

accept National Board certification if the diplomate has been licensed by another State, and Georgia accepts certificates of the National Board issued prior to October 1953.

[116] See Fordham, "Medical Licensure; A Comparative View," 192 J.A.M.A. 140 (1965).

[117] Calif. Bus. & Prof. Code § 2321; Oreg. Rev. Stat. § 677.120(5) (1966).

[118] Letter from the National Board of Medical Examiners to the authors, Feb. 16, 1967.

[119] 14 National Board Examiner, No. 2, p. 3 (Nov. 1966).

[120] Arkansas, Louisiana, and Nevada have no provisions for the licensure of foreign medical graduates. In Delaware the licensure statute requires graduation from an approved medical school in the United States or Canada, but exceptions may be made on the unanimous recommendation of the licensing agency. Delaware Code Ann. Title 24, § 1733(b) (Supp. 1966).

This discussion of licensure of foreign medical graduates is not applicable to graduates of approved Canadian medical schools, who are generally treated the same as United States graduates because their schools are accredited by the same accrediting body as are American medical schools.

[121] E.g., Mo. Stat. Ann. § 334.045 (1966); Okla. Stat. Title 59, § 498(d) (1961); South Dakota Code § 27.0308 (1952). See Medical Licensure Statistics for 1966, supra note 99, at appendix table 10 p. 1104.

[122] Wis. Stat. § 147.15(lm) (1965).

[123] See ch. 1, §§ A.3.a(1)–(3), supra.

[124] Delaware Code Title 24, § 1733(a)(4) (Supp. 1966); Hawaii Rev. Laws § 64–3 (b) (1963); West Virginia Code § 30–3–4(c) (1966). See also Calif. Bus. & Prof. Code § 2193(d) requiring 1 year of internship in the State.

[125] See notes 76–78, supra and accompanying text.

[126] West Virginia Code § 30–3–4(c) (1966).

[127] For discussion of the propriety of importing physicians from other countries to the United States, see 2 The President's Commission on Heart Disease, Cancer and Stroke: *A National Program to Conquer Heart Disease, Cancer, and Stroke* 281 (1964).

[128] See app. 4.B, "ECFMG Certification" column.

[129] See app. 4.B, "Internship or Residency" column.

[130] Ariz. Rev. Stat. § 32–1424(4) (Supp. 1966) (2 years); Calif. Bus. & Prof. Code § 2193(d) (2 years); Hawaii Rev. Laws § 64–3(d)(3) (Supp. 1963) (3 years); Iowa Code § 148.3(1)(b) (1962) (3 years); Ky. Rev. Stat. § 311.570(1) (1962) (5 years); Virginia Code § 54.306.3 (1967) (2 years).

[131] Wis. Rev. Stat. § 147.15(lm) (1965).

[132] See app. 4.B, "Existing License" column.

[133] Ariz. Rev. Stat. § 32–1424(5) (Supp. 1966).

[134] See app. 4.B.

[135] Cf. ch. 1, § A.3.b(5), supra.

[136] See, e.g., Mo. Ann. Stat. § 334.070 (1966); Tex. Civ. Stat. art. 44–99 (1966).

[137] See, e.g., Alabama Code Title 46, § 265 (1968); Mo. Ann. Stat. § 334.060 (1966); Tex. Civ. Stat. art. 4498(a) (1966).

[138] See, e.g., Calif. Bus. & Prof. Code 2111; N.Y. Educ. Law § 6510(4).

[139] The five States without renewal requirements are Kentucky, Massachusetts, Mississippi, New Jersey, and Ohio.

[140] For discussion of reinstatement of licenses after disciplinary suspension or revocation, see ch. 1, § A.6.c. infra.

[141] E.g., Colo. Rev. Stat. § 91–1–23 (1963); Nebr. Rev. Stat. § 71–110(3) (1966).

[142] Calif. Bus. & Prof. Code § 2376.5.

[143] Ariz. Rev. Stat. § 32–1429(F) (Supp. 1966).

[144] Cf. ch. 1, § A.6.a., infra.

[145] See Prosser, The Law of Torts § 40, at 195 (2d ed. 1955); ch. 4, § infra.

[146] See editorial, "The Quality of Medicine Is Strained," 200 J.A.M.A. 1122 (1967).

[147] Hawaii will, however, accept certification by the National Board of Medical Examiners. Hawaii Rev. Laws § 64—3 (Supp. 1963).

[148] See generally app. 5.

[149] Although some licensure statutes refer to reciprocity agreements between States, no formal agreements exist. Reciprocity is determined by regulations of the licensing boards or by informal arrangements between jurisdictions.

[150] See app. 5, "Requirements" and "Other Factors" columns. A few States also require that the existing license for which endorsement is sought must have been procured without fraud, or within a specified number of years preceding the current application, and/or that it must never have been suspended or revoked. In some States an applicant who has failed the State licensing examination cannot thereafter be granted a license on the basis of credentials from another State.

[151] Alabama, Arizona, California, Delaware, District of Columbia, Idaho, Illinois, Iowa, Kansas, Kentucky, Maryland, New Hampshire, New York, Oklahoma, Pennsylvania, and Wyoming.

[152] Connecticut, Indiana, Massachusetts, Montana, Nebraska, Ohio, South Carolina, and Virginia.

[153] *Dent* v. *West Virginia,* 129 U.S. 114 (1888). For a more comprehensive statement of the constitutional scope of the States' police power, see *Nebbia* v. *New York,* 291 U.S. 502 (1934).

[154] See ch. 1, § 3.b(3), supra.

[155] See note 115, supra and accompanying text. As there indicated, 42 jurisdictions currently accept National Board certification in lieu of State examination for initial licensure, and 46 accept such certificates for endorsement of other State licenses.

[156] U.S. Const. art. IV, § 1. In no instances have medical licenses, or any other State licenses limiting certain activities to qualified individuals, been construed as "public acts" entitled to full faith and credit by sister States. See Jackson, "The Full Faith and Credit Clause; The Lawyer's Clause of the Constitution," 45 Colum. L. Rev. 1 (1945).

[157] U.S. Const. art. I, § 8, clause 3. Whether a State's restrictions upon the entrance of physicians could be held to violate the commerce clause would depend on whether the applicable regulation of the practice of medicine was construed to affect interstate commerce, and whether the regulation was considered to impose an undue burden on such commerce. In the absence of precisely relevant precedent, these questions cannot be definitely answered since they involve some of the most complex issues in constitutional law. See, e.g., "A Symposium on State Taxation of Interstate Commerce," 46 Va. L. Rev. 1051 (1960).

[158] F. S. Mott & M. I. Roemer, *Rural Health and Medical Care* 377 (1948).

[159] See app. 5, "At the Discretion of the Board" column. The six States without discretionary qualifications of their reciprocity requirements are Alaska, Arkansas, Georgia, Louisiana, Nevada, and Vermont.

[160] Iowa Acts 1963, ch. 122, § 11 at 201–02; Minn. Stat. § 147.04 (Supp. 1966).

[161] It is possible that statutory grounds for suspension or revocation of an existing license may influence the interpretation of statutory requirements for the issuance of a new license, especially criteria such as "good moral character." See note 64, supra and accompanying text. And, in general, the same statutory procedures may be used by an aggrieved physician to test a licensing agency's initial refusal to license him or subsequent decision to discipline him. The present section, however, considers both grounds and procedures only in disciplinary contexts.

[162] See generally app. 6, "Some Offenses Subject to Disciplinary Action" columns; app. 7, "Grounds" column.

[163] A.M.A. Medical Disciplinary Committee, *Report to the Board of Trustees* 41 (1961). This report was based upon the same statutory survey as app. 6 of the present report. For subsequent amendments of the statutes, see app. 7.

[164] *Czarra* v. *Board of Med. Supervisors,* 25 App. D.C. 443, 451 (1905).

[165] Id. at 453.

[166] E.g., *Board of Med. Examiners* v. *Mintz,* 233 Oreg. 441, 378 P. 2d 945 (1963). See also "Cases on Revocation of Physicians' Licenses" (Am. Med. Association, mimeograph, undated); 41 Am. Jur. Physicians and Surgeons § 46 (1938); 70 C.J.S. Physicians and Surgeons § 31 (1955); Annot., 5 A.L.R. 94 (1920), 79 A.L.R. 323 (1932), 163 A.L.R. 909 (1946).

[167] *Sage-Allen Co.* v. *Wheeler,* 119 Conn. 667, 678–79, 179 Atl. 195, 199–200 (1935).

[168] A.M.A. Med. Disciplinary Comm., supra note 163, at 45, 46.

[169] In most States the statutes give the licensing board discretionary authority to suspend or revoke licenses on the grounds listed. In only a few States does the board have a statutory "duty" to suspend or revoke licenses; e.g., Georgia Code § 84–916 (Supp. 1966).

[170] Compare the reported incidence of various complaints against physicians, A.M.A. Med. Disciplinary Comm., supra note 163, at 18, with the grounds most frequently involved in disciplinary actions, Id. at 25.

[171] See generally A.M.A. Med. Disciplinary Comm., supra note 163.

[172] Ariz. Rev. Stat. § 32–1401(8)(t) (Supp. 1966).

[173] For more complete statement and discussion of the standard applicable to civil malpractice cases, see ch. 4, § IIB, infra.

[174] Ariz. Rev. Stat. § 32–1401(8)(h) (Supp. 1966).

[175] N.J. Stat. § 45:9–16(h) (1963).

[176] Oregon Rev. Stat. § 677.190(19) (1961).

[177] R.I. Gen. Laws § 5–37–4(j) (Supp. 1966).

[178] For discussion of abortion laws, see Leavy and Kummer, "Abortion and the Population Crisis: Therapeutic Abortion and the Law; Some New Approaches," 27 Ohio St. L. J. 647, 654 (1966); Roemer, "Due Process and Organized Health Services," 79 Pub. Health Rep. 664, 666 (1964).

[179] In 1967 Colorado (which previously allowed abortion to preserve health) and North Carolina amended their abortion laws along the lines of the Model Penal Code § 207.11 (1957). Colo. Rev. Stat. 1963, as amended by § 40–2–50 (1967); N.C. Gen. Stat., Art. II, ch. 14 (1967). California adopted a statute permitting abortions to preserve a woman's health and in cases of rape and incest. Therapeutic Abortion Act; Calif. Sess. Laws 1967, ch. 327. In all these States, license revocation will now be authorized only for abortions outside the exceptions to the criminal law.

[180] Oreg. Rev. Stat. § 677.190(2) (1961).

[181] *State* v. *Buck,* 200 Oreg. 87, 262 P. 2d 495 (1953). For discussion of this case, see Leavy and Kummer, supra note 178, at 654.

[182] Mississippi Code § 8893.1(5) (Supp. 1964).

[183] Mental disability grounds are indicated in app. 6, "Mental illness" column, and app. 8; recent amendments are specially noted in app. 7, "Grounds" column.

[184] Alaska Code Title 46, § 270 (Supp. 1965).

[185] Wyo. Stat. § 33–340(e) (1959).

[186] Oreg. Rev. Stat. § 677.225 (1961); cf. Oreg. Rev. Stat. § 677.190(18) (1961).

[187] Calif. Bus. & Prof. Code § 2416.

[188] E.g., Virginia Code § 54–317.1(2) (1966).

[189] Compare the proposal that periodic reexamination and/or regular participation in continuing education programs be made "requirements for continuing membership in organized medicine and other medical associations." Gunderson, "Medical Responsibilities in a Changing World," 170 J.A.M.A. 280, 282 (1959).

[190] N.Y. Educ. Law § 6514-2(d).

[191] Conn. Gen. Stat. Rev. § 20-5 (1958) District of Columbia Code §§ 2-123, 2-131 (1967); Iowa Code §§ 147.58 (1962); La. Rev. Stat. Title 37, § 1285 (1950); Wis. Rev. Stat. § 147.20(2) (1965).

[192] Ill. Ann. Stat. ch. 91, § 16a (Smith-Hurd 1966); Nebr. Rev. Stat. § 71-149 (1966); R.I. Gen. Laws Ann. § 5-37-4 (Supp. 1966).

[193] Alabama Code Title 46, §§ 259, 270 (Supp. 1965); Tennessee Code Ann. §§ 63-606, 63-618 (1956).

[194] Delaware Code Title 24, §§ 1701, 1741 (1953 and Supp. 1966).

[195] Wash. Rev. Code § 18.74.080 (Supp. 1963).

[196] For the designation and composition of medical licensing agencies, see ch. 1, § A.2.a., supra; app. 3.

[197] See ch. 1, § A.2.a,b., supra.

[198] A.M.A. Med. Disciplinary Comm., supra note 163, at 60.

[199] Id. at 55, 68.

[200] See F. Grad, *Public Health Law Manual* 62-74 (1965); Reich, *The New Property,* 73 Yale L. J. 733 (1964).

[201] See app. 6, "Privileges of Defendant" columns; app. 7, "Procedures" column.

[202] See app. 6, "Appeal" column; app. 7, "Procedures" column.

[203] *Horton* v. *Clark,* 316 Mo. 770, 293 S.W. 362 (1927).

[204] *Ramsay* v. *Shelton,* 329 Ill. 432, 160 N.E. 769 (1928).

[205] *Board of Med. Examiners* v. *Lewis,* 149 Ga. 716, 102 S.E. 24 (1920).

[206] *Shively* v. *Stewart,* 65 A.C. 514, 518-19, 421 P. 2d 65, 68, 55 Cal. Rptr. 217, 220 (1966):

> The criminal law analogy is appropriate here. The medical board has the resources of the State at its command to enable it to secure complete information and to prepare its case before filing an accusation. Since the agency is the accuser, a party to the proceeding, and ultimately makes a decision on the record, its concentration of functions calls for procedural safeguards. Petitioners have been charged with crimes and should have the same opportunity as in criminal prosecutions to prepare their defense. Moreover, when, as in this case, a busy professional board must be assembled to hear the charges, it is of the utmost importance that full preparation be promoted so that needless continuances can be avoided.

[207] *Cooper* v. *Board of Med. Examiners,* 35 Cal. 2d 242, 217 P. 2d 630 (1960).

[208] *State* v. *Hanson,* 201 Iowa 579, 207 N.W. 769 (1926).

[209] *Schoenen* v. *Board of Med. Examiners,* 245 A.C.A. 972, 54 Cal. Rptr. 364 (1966).

[210] E.g., Ariz. Rev. Stat. § 32-1452(A)(1) (Supp. 1966); N.M. Stat. § 67-5-26 (B) (1961); Wis. Rev. Stat. § 147.26(2) (1965).

[211] E.g., Ariz. Rev. Stat. § 32-1452(A)(1) (Supp. 1966); Calif. Bus. & Prof. Code § 2376.5.

[212] E.g., Calif. Bus. & Prof. Code § 2376.5; N.M. Stat. § 67-5-26(C) (1961); Wis. Rev. Stat. § 147.26(2) (1965).

[213] Separate reinstatement criteria and procedures especially characterize recently enacted mental disability provisions. See app. 7.

[214] E.g., Calif. Bus. & Prof. Code § 2416; N.M. Stat. § 67-5-26(A) (1961).

[215] See text accompanying notes 185-189, supra.

[216] 2 McNerny, *Hospital and Medical Economics* 1274 (1962); Northrup, *Perspectives from the Past: Sixty-five Years of Progress,* 60 J. Am. Osteopathic Association 81 (1960).

[217] 2 McNerny, op. cit., supra note 216, at 1275.

[218] A.M.A. Comm. on Osteopathy & Medicine, Report (1955), reprinted in *Appointment of Doctors of Osteopathy as Medical Officers, Hearings on H.R. 483 Before a Subcom. of the Senate Comm. on Armed Services,* 84th Cong., 2d Sess. 79, 87 (1956).

[219] Of the 305,115 physicians in the United States as of Dec. 31, 1965, the degree of Doctor of Osteopathy was held by 13,027. U.S. Department of Health, Education, and Welfare, *Health Resources Statistics, 1965,* 98 (1965).

[220] See generally Holman, *Osteopathy and the Law,* 195, No. 10 J. Am. Med. Association 283 (Mar. 7, 1966).

[221] See app. 9.

[222] Ibid.

[223] Ibid.

[224] Ibid.

[225] Ibid.

[226] Ibid.

[227] Cal. Bus. & Prof. Code § 3600.

[228] Cal. Bus. & Prof. Code § 2100–2101.

[229] See app. 9.

[230] Ibid.

[231] Discussion with former President of Louisiana State Medical Association.

[232] Kisch and Viseltear infra note 253.

In general interstate recognition of osteopathic licenses is based on equivalence of education. See, e.g., Oreg. Rev. Stat. § 681.090 (1961); Wash. Rev. Code § 18.57.130 (1959).

[233] Health Professions Educational Assistance Act of 1963, 42 U.S.C. §§ 292–292b, 292d to 292j, 293–393h, 294–294e (1963).

[234] Ariz. Rev. Stat. § 32–1825(B) (1956); Fla. Stat. § 459.19 (1965); Me. Rev. Stat., Title 71, § 6 (1954); Mich. Stat. § 14.573 (1956); Nev. Rev. Stat. § 633.110(3) (1963); N. Mex. Stat. § 67–8–17 (1953); North Dakota Code § 43–14–17(2) (1959); Ohio Rev. Code § 4731.37 (1964); Okla. Stat., Title 59, § 641 (1961); Tennessee Code § 63–908 (Supp. 1966); Vt. Stat., Title 26, § 1836 (1967); West Virginia Code § 30–14–10 (1966).

[235] In nearly all the 12 States cited in note 234, supra, attendance at the annual educational program conducted by the State osteopathic association, or its equivalent, satisfies the requirement of refresher education.

[236] See ch. 1, § A.4., supra.

[237] See ch. 1, § B.2.a., infra.

[238] See ch. 1, § B.1., supra.

[239] 2 McNerny, supra note 216, at 1281–82.

[240] Id. at 1275–76.

[241] Id. at 1278.

[242] Id. at 1275–78, 1281–83, 1442.

[243] 42 U.S.C. §§ 291 et seq. (1963).

[244] See American Hospital Association, *Hospital Accreditation References* (1964).

[245] *Kurk* v. *Medical Soc'y,* 276 N.Y.S. 2d 1007, 223 N.E. 2d 499 (1966), aff'g 24 App. Div. 2d 897, 264 N.Y.S. 2d 859 (1965), *rev'g* 46 Misc. 2d 790, 260 N.Y.S. 2d 520 (1965).

[246] *Newton* v. *Board of Comm'rs,* 86 Colo. 446, 282 Pac. 1068 (1929); *Richardson* v. *Miami,* 144 Fla. 294, 198 So. 51 (1940); *Lambing* v. *Board of Comm'rs,* 45 Idaho

468, 263 Pac. 992 (1928); *Munroe* v. *Wall,* 66 N.M. 15, 340 P. 2d 1069 (1959); *Wallington* v. *Zinn,* 146 W. Va. 147, 118 S.E. 2d 526 (1961); *Duson* v. *Poage,* 318 S.W. 2d 89 (Tex. Civ. App. 1958); *Harris* v. *Thomas,* 217 S.W. 1068 (Tex. Civ. App. 1920).

[247] Iowa and Michigan, cited by Holman, supra note 20, at 284.

[248] *Stribling* v. *Jolley,* 362 Mo. 995, 245 S.W. 2d 885, modified, 241 Mo. App. 1123, 253 S.W. 2d 519 (1952); *Morgan* v. *State,* 155 Nebr. 247, 51 N.W. 2d 382 (1952); New Jersey cases cited notes 249, 251, infra and accompanying text.

[249] 62 N.J. Super. 184, 162 A.2d 324 (1960), aff'd, 34 N.J. 582, 170 A.2d 791, 89 A.L.R. 2d 952 (1961).

[250] 162 A.2d at 337. Cf. *Group Health Ins.* v. *Howell,* 40 N.J. 436, 193 A.2d 103 (1963), discussed in ch. 5, § infra, in which a restrictive enabling act for medical care plans was held to be an unconstitutional delegation of the legislature's licensing power to the State medical society.

[251] 76 N.J. Super. 149, 183 A.2d 878 (1962), aff'd, 40 N.J. 389, 192 A.2d 817 (1963).

[252] Cal. Bus. & Prof. Code § 3600.

[253] For an historical account of the forces and interests involved in this unique accomplishment, see Kisch and Viseltear, *Doctors of Medicine and Doctors of Osteopathy in California; Two Separately Legitimized Medical Professions Face the Problem of Providing Medical Care,* a case study prepared by the U.C.L.A. School of Public Health and published by the Division of Medical Care Administration, U.S. Public Health Service, Washington, D.C. (1967).

[254] Cal. Bus. & Prof. Code § 3600. This section of the Osteopathic Practice Act no longer provides for licensing osteopaths, but states that the law governing licenses of the Board of Osteopathic Examiners is to be found in the division of the code relating to the practice of medicine.

[255] Kisch and Viseltear, supra note 253.

[256] Cal. Bus. & Prof. Code § 2396.

[257] Kisch and Viseltear, supra note 253.

[258] Ibid.

[259] Ibid.

[260] Ibid.

[261] See ch. 1, § A.5., supra; text accompanying note 245, supra.

[262] A.M.A. News, Jan. 9, 1967, at 9, col. 2.

[263] See A.O.A.-A.M.A. Relationships (undated "White Paper" published by the American Osteopathic Association).

[264] Cultists should be distinguished from religious healers, such as Christian Science practitioners, who are excepted from the operation of medical licensure laws. See ch. 1, § A.I.a., supra. This exemption is based upon constitutional freedom or religion and the legal right of competent adults to refuse medical treatment.

[265] See ch. 1, § B., supra.

[266] Stanford Research Institute, *Chiropractic in California* 3 (1960) (estimated 25,000 chiropractors in United States in 1957); Smith, "Chiropractic: Science or Swindle?" 43 Today's Health 56 (1965): "Today chiropractors may be treating as many as 3 million people a year for ailments ranging from headaches to cancer. . . . The 1960 census listed 14,360 chiropractors in the United States but the American Chiropractic Association claims there are 25,000 and a public relations firm for the chiropractors says there are 35,000."

[267] American Medical Association, *Chiropractic: The Unscientific Cult* 5 (1966).

[268] E.g., American Medical Association, supra note 267; Boyd, *The Cult of Chiropractic* (2d ed. undated); Doyle, "Science *v.* Chiropractic" (1953); Smith, supra note 266; Stalvey, "What's New in Chiropractic?" 57 N.Y. State J. Med. 49 (1957).

[269] See *England* v. *La. State Bd. of Med. Examiners,* 246 F. Supp. 993 (E.D. La. 1965), aff'd mem. 384 U.S. 885 (1966).

[270] Id. at 995: "There seem to be two schools of chiropractic. The members of the International Chiropractic Association apparently believe that there is one cause of disease—subluxation of the vertebra—and one cure—manipulation of the spine to relieve the subluxation. The American Chiropractic Association, while not as absolute in its approach to the problem of disease, nevertheless feels that chiropractic is a complete and independent healing art which not only can prevent disease, but can cure disease if the manipulation of the spine begins in time."

[271] See authorities cited notes 268, 269, supra.

[272] See, e.g., Bayer, *Medicine Men and Men of Medicine* (1940); Reed, *The Healing Cults* (1932); Statement of Deans of University of Rochester School of Medicine and Dentistry, Cornell University School of Medicine, Albert Einstein College of Medicine, and New York Medical College, presented to the Rules Committee of the New York State Assembly, Mar. 25, 1963; authorities cited note 268, supra.

[273] Medical Society of the State of New York, *Myth and Menace: The Truth about Chiropractic* (1948); authorities cited notes 268, 272, supra.

[274] See e.g., Smith, supra note 266 at 59; Statement of Chief Medical Examiner, City of New York; President, Medical Society of the County of New York; and Chairman, Joint Committee of the New York State Bar Association and the Medical Society of the State of New York, presented to the Rules Committee of the New York State Assembly, Mar. 25, 1963.

[275] See e.g., A.M.A. Department of Investigation, *Data Sheet on Chiropractic* 3 (1966); Boyd, supra note 268 at 56–57; Marsel, "Can Chiropractic Cure?" [1946] Hygiene 6.

[276] Illustrative is the most recent enactment of chiropractic licensure in 1963 by the New York Legislature, despite the adamant and unanimous opposition of the educational, medical, and scientific communities. Massachusetts followed suit in 1966. (Personal communication from Law Department, A.M.A.)

[277] See Introduction, supra; ch. 1, § A., supra.

[278] See ch. 1, § A.1.a., text accompanying notes 9, 10, supra.

[279] Smith, supra note 266, at 59.

[280] See Boyd, supra note 268, at table 1; A.M.A. Department of Investigation, *Scope of Chiropractic Practice in the United States* (1966).

[281] Calif. Deerings Gen. Laws Act 4811; Fla. Stat. § 460.11 (1965); Pa. Stat. Ann. Title 63, § 602(b) (Purdon, 1959).

[282] E.g., Mont. Rev. Codes § 66–509 (1962); N.C. Gen. Stat. § 90–151 (1965).

[283] The California courts have held that the scope of chiropractic is not enlarged by such statutory language. *Crees* v. *Medical Examiners,* 213 Cal. App. 2d 195, 28 Cal. Rptr. 621 (1963); *People* v. *Mangeofi,* 97 Cal. App. 2d 935, 218 P. 2d 1025 (1950); *People* v. *Fowler,* 32 Cal. App. 2d 737, 84 P. 2d 326 (1938). Cf. *Ellestad* v. *Swayze,* 15 Wash. 2d 281, 130 P. 2d 349 (1942), holding that licensure standards may be more demanding than training given in chiropractic schools, as long as they have "real and substantial relation" to the protection of public health and welfare.

[284] Boyd, supra note 268, at 27.

[285] Anderson Report, *Issues Confronting The Delegates and Members of the American Chiropractic Association as They Seek to Solve the Problems of Chiropractic Education* 8, 9–10 (1964).

[286] In addition to basic prohibitions of drugs and surgery, one or more licensure statutes also proscribe the practice of obstetrics, osteopathy, physiotherapy, dentistry, optometry, or chiropody; the use of X-rays for therapeutic purposes; or the piercing of tissue for any purposes. See authorities cited note 280, supra. The New York statute contains a rather comprehensive list, and this statute is also one of the few which designate certain types of diseases which may not be treated by chiropractic. N.Y. Educ. Law § 6558(3).

[287] Since statutory enforcement is notoriously lax in those States in which the licensing agency is a board of chiropractors, consideration should be given to enforcement by nonchiropractic agencies as a prerequisite for any improvement.

[288] Mont. Rev. Codes § 66–509 (1962), specifying that licensed chiropractors "shall be permitted to use the prefix Dr. or Doctor as a title."

[289] Fla. Stat. § 460.11(3) (1965); Idaho Code § 54–714 (1957); Nev. Rev. Stat. § 634.120(3) (1963), specifically permitting licensees to use the term "chiropractic physician." But see N.D. Century Code § 43–06–11 (1960): "A licensed chiropractor may not use the title physician, or surgeon, but may use the title doctor of chiropractic, or D.C."

[290] See, e.g., Colo. Rev. Stat. § 23–2–18 (1963); Conn. Gen. Stat. § 20–32 (1958); Hawaii Rev. Laws § 60–14 (1963); Kans. Stat. § 65–2885 (1964); Maine Rev. Stat. ch. 66, § 7 (1954); N.J. Stat. § 45:9–14.5 (1963); North Dakota Century Code § 43–06–11 (1960); Virginia Code § 54–279 (1950); West Virginia Code § 3006 (1966); Wyo. Stat. § 33–142 (1957). Cf. Iowa Code § 151.6 (1962); N. Mex. Stat. § 67–1–22 (1953); Tennessee Code § 63–117 (1956), which require chiropractors to identify themselves in other ways.

[291] See Boyd, supra note 268, at 46–47.

[292] See ch. 1, § C.2.a.(2), infra.

[293] Boyd, supra note 268, at 19–23; Smith, supra note 266, at 59–61; authorities cited notes 295, 296, infra.

[294] See Anderson Report, supra note 285, at 32.

[295] Stanford Research Institute, supra note 266; A.M.A. Department of Investigation, "Educational Background of Chiropractic School Faculties," 197 J. Am. Med. Association 999 (1966).

[296] A.M.A. Department of Investigation, *Special Report: Requirements for Admission to Schools of Chiropractic,* 190 J. Am. Med. Association 763 (1964).

[297] A high school diploma or its equivalent is required by the statutes of Alabama, Arizona, Arkansas, California, Colorado, Iowa, Kentucky, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Mexico, New York (until 1968), Rhode Island, South Dakota, Tennessee, Texas, and Vermont. Two years of approved college is the statutory requirement in Alaska, Connecticut, Delaware, Florida, Hawaii, Illinois, Indiana, Maine, Montana, New Jersey, New York (after 1968), North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Virginia, West Virginia, Wisconsin, Wyoming. The statutes of Georgia, Maryland, Pennsylvania, and Utah require either 1 year of college or college credits in specified courses. See A.M.A. Department of Investigation, *Scope of Chiropractic Practice in the United States* (1966).

[298] Cf. ch. 1, § A.3.b.(2), supra.

[299] Such comparative data may no longer be available if the American Chiropractic Association succeeds in its efforts to prevent identification of the schools from which examination applicants come. Smith, supra note 266, at 59.

[300] Accordingly, the International Chiropractic Association is attempting to prevent the same boards from grading the examinations of medical and chiropractic students. Ibid.

[301] Doyle, supra note 266, at 10.

[302] See Smith, supra note 266, at 59–60.

[303] Id. at 59.

[304] For example, although chiropractors were not licensed by New York until 1963, over 3,000 were illegally practicing in the State as of 1957. Stalvey, supra note 268, at 56. See also Medical Society of the State of New York, supra note 273.

[305] "There is no special statute covering chiropractic [in Louisiana] * * * persons desiring to practice chiropractic in Louisiana must qualify under the provisions of the Medical Practice Act." *England* v. *Louisiana State Board of Medical Examiners,* 246 F. Supp. 993, 995 (E.D. La. 1965), aff'd mem. 384 U.S. 885 (1966). The refusal of the Louisiana Legislature to provide special licensure for chiropractors has been sustained against constitutional objections. Ibid.

[306] Stalvey, supra note 268, at 58.

[307] *Gian-Cursio* v. *State,* 180 So. 2d 396, 398 (Fla. 1965), quoting *State* v. *Hernes,* 144 Fla. 272, 274, 197 So. 787, 788 (1940).

[308] See generally A.M.A. Department of Investigation, *Scope of Chiropractic Practice in the United States* (1966).

[309] Mont. Rev. Codes § 66–508 (1947); N.D. Century Code § 43–0616(2) (1959); Oreg. Rev. Stat. § 684.030 (1961); S.D. Code § 27.0508 (1939).

[310] N.J. Stat. § 45:9–14.5 (1963).

[311] Maryland Code art. 43, § 510 (1957).

[312] Tennessee Code § 63–415 (1956).

[313] N.C. Gen. Stat. § 90–153 (1965). The same right of access to public supported institutions is granted by the South Carolina State Board of Chiropractic Examiners, *Rules and Regulations* § 17.

[314] N.D. Century Code § 43–0617 (1959).

[315] Stalvey, supra note 268, at 57.

[316] Ibid.

[317] Rev. Rul. 55–261, 1955–1 Cum. Bull. 307; I.T. 3598, 1943 Cum. Bull. 157.

[318] Stalvey, supra note 268, at 57.

Appendix 1

Statutory Definitions of the Practice of Medicine

[Excerpts from State Medical Practice Acts prepared by the American Medical Association Legal Department (Bernard Hirsh, General Counsel) November 1966, and updated by UCLA as of June 1967]

ALABAMA—Code—Title 46, Section 262

Any person who treats or offers to treat diseases of human beings in this State by any system of treatment, whatsoever, without having obtained a certificate of qualification from the State board of medical examiners, shall be found guilty of a misdemeanor.

ALASKA—Compiled Laws—Section 35-3-94

Any person shall be deemed as practicing within the meaning of this act, who shall have and maintain an office or place of business for the purpose of treating the sick or injured for pay, or who shall publicly display his or her name and words physician or surgeon, M.D., Dr., or Doctor in public view or shall assume or advertise any title which shall show or tend to show that the person assuming or advertising the same is willing or qualified to treat the sick or injured, or who for a fee shall prescribe, direct, or recommend for the use of any person, any drug or medicine for the treatment, cure or relief of any disease, infirmity, bodily injury, or defect, or for a fee perform any surgical operations for the cure, relief or reduction of any disease, bodily injury, deformity, or defect.

ARIZONA—Revised Statutes—Section 32-1402

A person shall be regarded as practicing medicine and surgery, or either, if he, by any indication or statement, claims his ability or willingness to, or does, diagnosticate or prognosticate any human ills, real or imaginary, or claims his ability or willingness to, or does, prescribe or administer any medicine, treatment or practice, or performs any operation, manipulation or application for compensation.

ARKANSAS—Statutes—Section 72-604

The term "practice of medicine" shall mean:

(a) Holding out oneself to the public within this State as being able to diagnose, treat, prescribe for, palliate or prevent any human disease, ailment, injury, deformity or physical or mental condition, whether by the use of drugs, surgery, manipulation, electricity, or any physical, mechanical, or other means whatsoever;

(b) Suggesting, recommending, prescribing or administering any form of treatment, operation or healing for the intended palliation, relief or cure of any physical or mental disease, ailment, injury, condition or defect of any person with the intention of receiving therefor, either directly or indirectly, any fee, gift or compensation whatsoever;

(c) The maintenance of that office, or other place to meet persons, for the purpose of examining or treating persons afflicted with disease, injury or defect of mind or body;

(d) Using the title M.D., M.B., Physician, Surgeon, or any word or abbreviation to indicate or induce others to believe that one is engaged in the diagnosis or treatment of persons afflicted with disease, injury or defect of body or mind.

CALIFORNIA—Business and Professions Code—Section 21-37

The physician's and surgeon's certificate authorizes the holder to use drugs, or what are known as medical preparations, in or upon human beings and to sever or penetrate the tissues of human beings and to use any and all other methods in the treatment of diseases, injuries, deformities, or other physical or mental conditions.

COLORADO—Revised Statutes—Section 91-1-6

For purposes of this article the term "practice of medicine" shall mean:

(a) Holding oneself to the public within this State as being able to diagnose, treat, prescribe for, palliate or prevent any human disease, ailment, pain, injury, deformity, or physical or mental condition, whether by the use of drugs, surgery, manipulation, electricity, or any physical, mechanical or other means whatsoever;

(b) Suggesting, recommending, prescribing or administering any form of treatment, operation or healing for the intended palliation, relief, or cure of any physical or mental disease, ailment, injury, condition or defect of any person with the intention of receiving therefor, either directly or indirectly, any fee, gift or compensation whatsover;

(c) The maintenance of an office, or other place to meet persons, for the purpose of examining or treating persons afflicted with a disease, injury or defect of body or mind;

(d) Using the title M.D., D.O., Doctor, Surgeon, or any word or abbreviation to indicate or induce others to believe that one is engaged in the diagnosis or treatment of persons afflicted with disease, injury, or defect of body or mind;

(e) Performing any kind of surgical operation upon a human being; or

(f) The practice of midwifery.

CONNECTICUT—General Statutes—Title 20, Section 20-9

No person shall, for compensation, gain or reward, received or expected, diagnose, treat, operate on or prescribe for any injury, deformity, ailment or disease, actual or imaginary, of another person, nor practice surgery, until he has obtained a certification of registration.

DELAWARE—Code—Title 24, Section 17-31

As used in this chapter, "practice of medicine or surgery" means to:

(1) Open an office for such purpose; or

(2) Announce to the public, or to any individual, in any way, a desire or willingness or readiness to treat the sick or afflicted in any country in this state; or

(3) Investigate or diagnosticate, or offer to investigate or diagnosticate, any physical or mental ailment, or disease of any person; or

(4) Give surgical assistance to, or suggest, recommend, prescribe or direct for the use of any person, any drug, medicine, appliance or other agency, whether material or not material, for the cure, relief, or palliation of any ailment or disease of mind or body, or for the cure or relief of any wound, fracture, or bodily injury, or deformity, after having received or with intent of receiving therefor, either directly or indirectly, any money, gift, or other form of compensation.

It shall also be regarded as practicing medicine within the meaning of this chapter if anyone uses in connection with his name the words or letters, Dr., Doctor, Professor, M.D., D.O. or either, or any other type of word, letter, or other designation which may imply or designate him as a practitioner of medicine, or surgery, in any of its branches.

FLORIDA—Statutes—Title 30, Section 458.13

Any person, except as hereinafter provided, shall be deemed to be practicing medicine within the purview of this chapter, who holds himself out as being able to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition, or who shall offer or undertake by any means or method, to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition.

GEORGIA—Code—Section 84-901

The terms "practice of medicine," "to practice medicine," "practicing medicine," and "practice medicine," as used in this chapter, are hereby defined to mean holding oneself out to the public as being engaged in the diagnosis or treatment of disease, defects or injuries of human beings, or the suggestion, recommendation, or prescribing of any form of treatment for the intended palliation, relief, or cure of any physical, mental or functional ailment or defect of any person with the intention of receiving therefor, either directly or indirectly, any fee, gift or compensation whatsoever, or the maintenance of an office for the reception, examination and treatment of persons suffering from disease, defect or injury of body or mind, or attaching the title M.D., Oph. D, D.O.P., Surgeon, Doctor either alone or in connection with other words, or any other words or abbreviations to his name, indicating that such person is engaged in the treatment or diagnosis of disease, defects or injuries of human beings.

HAWAII—Revised Laws—Section 64-1

For the purposes of this chapter the practice of medicine shall include the use of drugs and medicines, water, electricity, hypnotism or any other means or methods, or any agent, either tangible or intangible, for the treatment of disease in the human subject.

IDAHO—Code—Section 54-1802

Any person shall be regarded as practicing medicine and surgery who shall advertise in any manner, or hold himself or herself out to the public, as a physician and surgeon, or either, or who shall investigate, diagnose or treat, or offer to investigate, diagnose or treat, any physical or mental ailment or disease, real or imagined, of any person with a view to relieving the same, as is commonly done by physicians and surgeons, or suggest, recommend, prescribe or direct for the use of any person, sick, injured or deformed, any drug, medicine, device or appliance for the intended relief, palliation or cure of the same, or who shall suggest, recommend, prescribe or direct an operation on any such sick, injured or deformed person or who shall perform, or offer to perform, any such operation whether or not such person receives therefor, either directly or indirectly, any fee, gift or compensation of any kind whatsoever or any manner whatsoever.

ILLINOIS—Revised Statutes—Chapter 91, Section 16i

If any person shall hold himself out to the public as being engaged in the diagnosis or treatment of ailments of human beings; or shall suggest, recommend or prescribe any form of treatment for the palliation, relief or cure of any physical or mental ailment of any person with the intention of receiving therefor, either directly or indirectly, any fee, gift, or compensation whatsoever; or shall diagnosticate or attempt to diagnosticate, operate upon, profess to heal, prescribe for, or otherwise treat any ailment, or supposed ailment, of another; or shall maintain an office for examination or treatment of persons afflicted, or alleged or supposed to be afflicted, by an ailment; or shall attach the title Doctor, Physician, Surgeon, M.D., or any other word or abbreviation to his name, indicative that he is engaged in the treatment of human ailments as a business; and shall not then possess in full force and virtue a valid license issued by the authority of this State to practice the treatment of human ailments in any manner, he shall be guilty of a misdemeanor.

INDIANA—Statutes Annotated—Section 63-1311

To open an office for such purpose or to announce to the public in any way a readiness to practice medicine in any county of the State, or to prescribe for, or to give surgical assistance to, or to heal, cure or relieve, or to attempt to heal, cure or relieve those suffering from injury or deformity, or disease of mind or body, or to advertise, or to announce to the public in any manner a readiness or ability to heal, cure or relieve those who may be suffering from injury or deformity, or disease of mind or body, shall be to engage in the practice of medicine within the meaning of this act. It shall also be regarded as practicing medicine within the meaning of this act, if anyone shall use in connection with his or her name, the words or letters, Dr., Doctor, Professor, M.D., or Healer, or any other title, word, letter, or designation intending to imply or designate him or her as a practitioner of medicine or surgery in any of its branches.

IOWA—Code—Section 148.1

For the purpose of this title the following classes of persons shall be deemed to be engaged in the practice of medicine and surgery:

(1) Persons who publicly profess to be physicians or surgeons or publicly profess to assume the duties incident to the practice of medicine or surgery.

(2) Persons who prescribe, or prescribe and furnish medicine for human ailments or treat the same by surgery.

(3) Persons who act as representatives of any person in doing any of the things mentioned in this section.

KANSAS—General Statutes—Section 65-2802

The healing arts include any system, treatment, operation, diagnosis, prescription, or practice for the ascertainment, cure, relief, palliation, adjustment, or correction of any human disease, ailment, deformity, or injury, and includes specifically but not by way of limitation the practice of medicine and surgery; the practice of osteopathy; and the practice of chiropractic.

KENTUCKY—Revised Statutes—Section 311.375

No person shall, in connection with the practice of medicine, surgery, osteopathy, optometry, dentistry, chiropody, pharmacy, chiropractic, psychology or psychiatry, nursing, anesthesiology, physio or physical therapy, or any other profession or business having for its purpose the diagnosis, treatment, correction or cure of any human ailment, condition, disease, injury or infirmity, hold himself out as a doctor or employ or use in any manner the title Doctor or Dr., unless he actually has graduated and holds a doctor degree from a school, college, university or institution authorized by its governing body to confer such degree.

LOUISIANA—Revised Statutes—Title 37, Section 1261

"The practice of medicine, surgery, or midwifery" means the holding out of oneself to the public as being engaged in the business of diagnosing, treating, curing, or relieving any bodily or mental disease, condition, infirmity, deformity, defect, ailment, or injury in any human being other than himself whether by the use of any drug, instrument or force, whether physical or psychic, or of whatever nature, or any other agency or means; or the examining, either gratuitously or for compensation, of any person or material from any person for such purpose whether such drug, instrument, force, or other agency or means is applied or used by the patient or by any other person; or the attending of any woman in childbirth without the aid of a licensed physician, surgeon or midwife; or the using of any title other than optician, to indicate that he is engaged in the business of refracting or fitting glasses to the human eye.

MAINE—Revised Statutes—Chapter 66, Section 7

Unless duly registered by said board, no person shall practice medicine or surgery or any branch thereof, or hold himself out to practice medicine or surgery or any branch thereof, for gain or hire within the State of diagnosing, relieving in any degree or curing, or professing or attempting to diagnose, relieve or cure any human disease, ailment, defect or complaint, whether physical or mental, or of physical or mental origin, by attendance or by advice or by prescribing or furnishing any drug, medicine, appliance, manipulation, method or any therapeutic agent whatsoever or in any other manner unless otherwise provided by statute of this State.

MARYLAND—Code—Article 43, Section 139

Any person shall be regarded as practicing medicine within the meaning of this subtitle who shall append to his or her name the word or letters Dr., Doctor, M.D., or any other title in connection with his name, with the intent thereby to imply that he or she is engaging in the art of or science of healing, or in the practice of medicine and any of its branches. Any person who practices medicine or the art or science of healing shall be considered as a practitioner of medicine or surgery. As used herein the phrase "art or science of healing" and the phrase "practice of medicine" shall be construed to include: operating on, professsing to heal, prescribing for or otherwise diagnosing or treating any physical or mental ailment or supposed ailment of another; or for hire, gratuity or compensation, either directly or indirectly paid, undertaking by an operation or treatment of whatever nature, to cure, heal, diagnose or treat any bodily or mental ailment or supposed ailment of another; or for hire, gratuity or compensation, either directly or indirectly paid, by or for any patient, undertaking to treat, heal, cure, drive away or remove any physical or mental ailment; or supposed ailment of another, by mental or other process, exercised or invoked on the part of either the medical practitioner or the patient or both.

MASSACHUSETTS—General Laws—Chapter 112

The statutes relating to the registration of physicians do not contain a specific definition of the practice of medicine.

MICHIGAN—Statutes—Section 14.537

Any person who shall practice medicine or surgery in this State, or who shall advertise in any form or hold himself or herself out to the public as being able to treat, cure or alleviate human ailments or diseases, and who is not the lawful possessor of a certificate of registration or license issued under and pursuant to the laws of Michigan, or without first complying with the provisions of this act, shall be deemed guilty of a misdemeanor.

MINNESOTA—Statutes—Section 147.10

Any person shall be regarded as practicing within the meaning of this chapter who shall append the letters M.D. or M.B. to his name, or for a fee prescribe, direct, or recommend for the use of any person, any drug or medicine or other agency for the treatment or relief of any wound, fracture, or bodily injury, infirmity or disease.

MISSISSIPPI—Code—Section 8888

The practice of medicine shall mean to suggest, recommend, prescribe or direct for the use of any person, any drug, medicine, appliance, or other agency, whether material or not material, for the cure, relief, or palliation of any ailment or disease of the mind or body, or for the cure or relief of any wound or fracture or other bodily injury or deformity, or the practice of obstetrics or midwifery, after having received, or with the intent of receiving therefor, directly or indirectly, any bonus, gift, profit or compensation.

MISSOURI—Statutes—Section 334.010

It shall be unlawful for any person not now a registered physician within the meaning of the law to practice medicine or surgery in any of its departments, or to profess to cure and attempt to treat the sick and other afflicted with bodily or mental infirmities, or engage in the practice of midwifery in this state, except as herein provided.

MONTANA—Revised Codes—Section 66–1007

Any person shall be regarded as practicing within the meaning of this article who shall append or affix the letters M.B. or M.D. or the title Dr. or Doctor or any other sign or appellation in a medical sense to his or her name, who shall publicly profess to be a physician or surgeon, who shall publicly profess either on his own behalf, in his own name, in his trade name, or on behalf of any other person, corporation, association, partnership, either as manager, bookkeeper, solicitor, or other agent, to cure, treat, relieve or palliate any ailment, disease, or infirmity of the mind or body of another by using or prescribing any drug, medicine, or surgical treatment, or who shall recommend, prescribe, or direct, for the use of any person, any drug, medicine, appliance apparatus, or other agency, whether material or not material, for the cure, relief, or palliation of any ailment or disease in the mind or body, or for the cure of relief of any wound, fracture, or bodily injury, or other deformity, after having received, or with the intent of receiving therefor, either directly or indirectly, any bonus, gift, or compensation.

NEBRASKA—Revised Statutes—Section 71–1, 102

For the purpose of this act, the following classes of persons shall be deemed to be engaged in the practice of medicine and surgery:

(1) Persons who publicly profess to be physicians, surgeons, or obstetricians, or publicly profess to assume the duties incident to the practice of medicine, surgery or obstetrics, or any of their branches;

(2) Persons who prescribe and furnish medicine for some illness, or treat the same by surgery;

(3) Persons holding themselves out to the public as being engaged in the diagnosis or treatment of diseases, ailments or injuries of human beings;

(4) Persons who suggest, recommend or prescribe any form of treatment for the intended palliation, relief or cure of any physical or mental ailment of any person;

(5) Persons who maintain an office for the examination or treatment of persons afflicted with ailments, diseases or injuries of the human mind or body; and

(6) Persons who attach to their names the title M.D., Surgeon, Physician, Physician and Surgeon, Doctor, or any word or abbreviation indicating that they are engaged in the treatment or diagnosis of ailments, diseases or injuries of human beings.

NEVADA—Revised Statutes—Section 630.020

As used in this chapter "practice of medicine, surgery and obstetrics" means

(a) To open an office for such purpose; or

(b) To give surgical assistance to any person; or

(c) To suggest, recommend, prescribe or direct for the use of any person, any drug, medicine, appliance or other agency, whether material or not material, for the cure, relief, or palliation of any ailment or disease of the mind or body, or for the cure or relief of any wound, fracture, bodily injury or deformity.

It shall also be regarded as practicing medicine within the meaning of this chapter if anyone shall use in connection with his name the words or letters M.D. or any other title, word, or other designation intended to imply or designate him as a practitioner of medicine or surgery or obstetrics in any of its branches.

NEW HAMPSHIRE—Revised Statutes—Section 329:1

Any person shall be regarded as practicing medicine under the meaning of this chapter who shall diagnose, operate on, prescribe for or otherwise treat any human ailment, physical or mental.

NEW JERSEY—Statutes—Section 45:9–5.1

The phrase "the practice of medicine or surgery" and the phrase "the practice of medicine and surgery" shall include the practice of any branch of medicine and/or surgery, and any method or treatment of human ailment, disease, pain, injury, deformity, mental or physical condition, and the term "Physician and Surgeon" or "Physician or Surgeon" shall be deemed to include practitioners in any branch of medicine and/or surgery or method of treatment of human ailment, disease, pain, injury, deformity, mental or physical condition.

NEW MEXICO—Statutes—Section 67–5–10

For the purposes of this act the words "practice of medicine" shall mean to open an office for such purpose or to announce to the public or any individual in any way, a desire or willingness or readiness to treat the sick or afflicted, or to investigate or to diagnose, or offer to investigate or diagnose any physical or mental ailment or disease of any person, or to suggest, recommend, prescribe or direct for the use of any person any drug, medicine, appliance or other agency, whether material or not material for the cure, relief or palliation of any ailment or disease of the mind or body, or for the cure or relief of any wound, fracture or bodily injury or deformity, after having received, or with the intent of receiving therefor, either directly or indirectly any bonus, gift or compensation.

NEW YORK—Education Law—Section 6501

A person practices medicine within the meaning of this article, except as hereinafter stated, who holds himself out as being able to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity or physical condition, and who shall either offer or undertake, by any means or method, to diagnose, treat, operate or prescribe for any human disease, pain, injury, deformity, or physical condition.

NORTH CAROLINA—General Statutes—Section 10–18

Any person shall be regarded as practicing medicine or surgery within the meaning of this article who shall diagnose or attempt to diagnose, treat or attempt to treat, operate or attempt to operate on, or prescribe for or administer to, or profess to treat any human ailment, physical or mental, or any physical injury to or deformity of another person.

NORTH DAKOTA—Code—Section 43–17–01

"Practice of medicine" shall include the practice of medicine, surgery and obstetrics. The following persons shall be regarded as practicing medicine:

(a) One who holds himself out to the public as being engaged within this State in the diagnosis or treatment of disease or injuries of human beings;

(b) One who suggests, recommends, or prescribes any form of treatment for the intended relief or cure of any physical or mental ailment of any person, with the intention of receiving, directly or indirectly, any fee, gift or compensation;

(c) One who maintains an office for the examination or treatment of persons afflicted with disease or injury of the mind or body;

(d) One who attaches the title M.D., Surgeon, Doctor, or any other word or abbreviation to his name, indicating that he is engaged in the treatment or diagnosis of the diseases or injuries of human beings shall be held to be engaged in the practice of medicine.

OHIO—Revised Code—Section 4731.34

A person shall be regarded as practicing medicine, surgery, chiropody or midwifery within the meaning of these sections who uses the words or letters Dr., Doctor, Professor, M.D., D.S.C., Prod. D., M.B., or any other title in connection with his name which in any way represents him as engaged in the practice of medicine, surgery, chiropody or midwifery, in any of its branches or who examines or diagnoses for compensation of any kind, or prescribes, advises, recommends, administers, or dispenses for compensation of any kind, direct or indirect, or drug or medicine, appliance, cast, application, operation, or treatment, or whatever nature, for the cure or relief of a wound, fracture or bodily injury, infirmity, or disease.

OKLAHOMA—Statutes—Title 59, Section 492

Every person shall be regarded as practicing medicine within the meaning and provision of this act who shall append onto his name the letters M.D., Doctor, Professor, Specialist, physician, or any other title, letters or designation which represents that such person is a physician, or who shall for a fee or compensation treat disease, injury or deformity of persons by any drugs, surgery, manual or mechanical treatment whatsoever.

OREGON—Revised Statutes—Section 677.030

A person is regarded as practicing medicine and surgery if he does one of the following:

(1) Advertise, or hold out to the public, or represent in any manner that he is authorized to practice medicine or surgery in this state;

(2) For compensation, directly or indirectly received, or to be received, offer or undertake to prescribe, give or administer, any drug or medicine for the use of any other person;

(3) Offer or undertake to perform any surgical operation upon any person;

(4) Offer or undertake to diagnose, cure or treat in any manner or by any means, methods, devices or instrumentalities any disease, illness, pain, wound, fracture, infirmity, deformity, defect or abnormal physical or mental conditions of any persons;

(5) Append the letters M.D. or M.B. to his name, or use the word Doctor, Physician, or Surgeon, or Psychoanalyst, Professor, or Healer, or Specialist, or any abbreviation or combinations thereof, or any letter or words of similar import in connection with his name, or any trade name in which he is interested, and the conduct of any occupation or profession pertaining to the diagnosis or treatment of human diseases or conditions mentioned in this section.

The statutes also define "diagnose" as meaning to examine another person in any manner to determine the source or nature of a disease or other abnormal physical or mental condition, or to hold oneself out or represent that a person is so examining another person. The statute also defines "prescribe" as meaning to direct, order or designate the use of or manner of using.

PENNSYLVANIA—Statutes—Title 63, Sections 401 and 401A

It shall not be lawful for any person in the State of Pennsylvania to engage in the practice of medicine and surgery, or pretend to a knowledge of any branch or branches of medicine and surgery, or to hold himself or herself forth as a practitioner in medicine and surgery, or to assume the title of Doctor of Medicine and Surgery or Doctor of any specific disease, or to diagnose diseases, or to treat diseases by the use of medicine and surgery as defined in this act or by any other means, or to sign any death certificate, or to hold himself or herself forth as able to do so, without complying with the provisions of this act.

The term "medicine and surgery" is defined to mean the art and science having for their object the cure of diseases of, and the preservation of the health of, man, including all practice of the healing art with or without drugs, except healing by spiritual means or prayer.

The term "healing art" is defined to mean the science of diagnosis and treatment in any manner whatsoever of disease or any ailment of the body.

RHODE ISLAND—General Laws—Section 5–37–1

Any person shall be regarded as practicing medicine within the meaning of this chapter who holds himself out as being able to diagnose, treat, operate, or prescribe for any person ill or alleged to be ill with disease, pain, injury, deformity or abnormal physical or mental condition, or who shall either profess to heal, offer or undertake, by any means or method, to diagnose, treat, operate, or prescribe for any person for disease, pain, injury, deformity or physical or mental condition.

SOUTH CAROLINA—Code—Section 56–1354

Any person shall be regarded as practicing medicine within the meaning of this chapter who

(a) Shall as a business treat, operate on or prescribe for any physical ailment of another,

(b) Shall engage in any branch or specialty of the healing art or

(c) Shall diagnose, cure, relieve in any degree or profess or attempt to diagnose, cure or relieve any human disease, ailment, defect, abnormality or complaint, whether of physical or mental origin, by attendance or advice, by prescribing, using or furnishing any drug, appliance, manipulation, adjustment or method or by any therapeutic agent whatsoever.

SOUTH DAKOTA—Code—Section 27.0310

Any person who shall append or prefix the letters, M.B. or M.D., or the title of Doctor or Dr. or Specialist, or any other sign or appellation in a medical sense, to his name, or shall profess publicly to be a physician or surgeon, or who shall recommend, prescribe, or direct for the use of any person any drug, medicine, apparatus, or other agency for the cure, relief or palliation of any ailment or disease of the mind or body, or the cure or relief of any wound, fracture, or bodily injury or deformity, after having received, or with intent of receiving therefor, either directly or indirectly, any bonus, gift or compensation, shall be regarded as practicing within the meaning of this chapter.

TENNESSEE—Code—Section 63–608

Any person shall be regarded as practicing medicine within the meaning of this chapter who shall treat, or profess to treat, operate on, or prescribe for any physical ailment or any physical injury to or deformity of another.

TEXAS—Revised Civil Statutes—Article 4510

Any person shall be regarded as practicing medicine within the meaning of this law:

(1) Who shall publicly profess to be a physician or surgeon and shall diagnose, treat, or offer to treat, any disease or disorder, mental or physical, or any physical deformity or injury by any system or method, or to effect cures thereof;

(2) Or who shall diagnose, treat or offer to treat any disease or disorder, mental or physical or any physical deformity or injury by any system or method and to effect cures thereof and charge therefor, directly or indirectly, money or other compensation.

UTAH—Code—Section 58-12-17

Any person who shall diagnose, treat or profess to treat, or prescribe or advise for, any physical or mental ailment of, or any physical injury to, or any deformity of, another; or who shall operate upon another for any ailment, injury or deformity, shall be regarded as practicing medicine or treating human ailments.

VERMONT—Statutes—Title 26, Section 1311

A person who advertises or holds himself out to the public as a physician or surgeon, or who assumes the title or uses the words or letters Dr., Doctor, Professor, M.D., or M.B. in connection with his name, or any other title implying or designating that he is a practitioner of medicine or surgery in any of its branches, or shall advertise or hold himself out to the public as one skilled in the art of curing or alleviating disease, bodily injuries, or physical or nervous ailments, or shall prescribe, direct, recommend, or advise, give or sell for the use of any person, any drug, medicine or other agency or application for the treatment, cure or relief of any bodily injury, infirmity, or disease, or who follows the occupation of treating diseases by any system or method, shall be deemed a physician, or practitioner of medicine or surgery.

VIRGINIA—Code—Sections 54-273 and 54-275

"Practice of medicine" is defined to mean the treatment of human ailments, diseases, or infirmities by any means or method.

Any person shall be regarded as practicing the healing arts and some school or branch thereof within the meaning of this chapter who opens an office for such purpose, or advertises or announces to the public in any way a readiness to practice in any county or city of the State, or diagnoses the condition of, prescribes for, gives surgical assistance to, treats, heals, cures or relieves persons suffering from injury or deformity or disease of mind or body, or advertises or announces to the public in any manner a readiness or ability to heal, cure or relieve those who may be suffering from any human ailment or infirmity, or who uses in connection with his name the words or letters Doctor, Dr., M.D., D.O., D.C., D.N., Healer, Physical Therapist, R.P.T., P.T., or any other title, word, letter or designation intending to designate or imply that he is a practitioner of the healing arts or any school or branch thereof, or that he is able to heal, cure or relieve those who may be suffering from any injury, deformity or disease of mind or body.

WASHINGTON—Revised Code—Section 18.71.010

The practice of medicine and surgery consists of the use of drugs or medicinal preparations in or upon human beings, severing or penetrating the tissues of human beings, and the use of any and all other methods in the treatment of diseases, injuries, deformities, or other physical or mental conditions.

WEST VIRGINIA—Code—Section 30-32

The term "practice of medicine and surgery" as used in this article shall be construed to mean the treatment of any human ailment or infirmity by any method. To open an office for such purpose or to announce to the public in any way a readiness to treat the sick or afflicted shall be deemed to engage in the practice of medicine and surgery.

WISCONSIN—Statutes—Section 147.01

To "treat the sick" is to examine into the fact, condition, or cause of human health or disease, or to treat, operate, prescribe, or advise for the same, or to undertake, offer, advertise, announce, or hold out in any manner to do any of said acts, for compensation, direct or indirect, or in the expectation thereof.

"Disease" includes any pain, injury, deformity, or physical or mental illness or departure from complete health and proper condition of the human body or any of its parts.

WYOMING—Statutes—Section 33-327

Any person shall be regarded as practicing medicine, within the meaning of this act, who shall in any manner hold himself out to the public as being engaged within this State in the diagnosis and treatment of diseases or injuries or deformities of human beings; or who shall suggest, recommend or prescribe any form of treatment for the intended palliation, relief or cure of any physical or mental ailment of any person with the intention of receiving therefor, either directly or indirectly, any fee, gift or compensation whatsoever; or who shall maintain an office for the reception, examination and treatment of any person suffering from disease or injury in body or mind; or who shall attach the title of M.D., Surgeon, Doctor or any other word or abbreviation to his name indicative that such person is engaged in the practice of medicine.

Appendix 2.A

Statutory Exemptions From Medical Licensure

Key to tabulated exemptions:

1. Physicians licensed in other States, called in for particular cases or specified patients.
2. Physicians licensed in neighboring States whose practice extends across State lines.
3. Licensed practitioners from other States, acting as consultants to physicians.
4. U.S. Government employees, including any or all of the following: military, public health, Veterans Administration.
5. Full-time medical professors in State.
6. First aid (including the administration of domestic remedies in a family, gratuitous services, and the rendering of service to a sick or injured person in an emergency).
7. Practitioners of religion, including Christian Science.
8. Members of other licensed health professions.
    - A. Chiropody (podiatry)
    - B. Chiropractic
    - C. Dentistry
    - D. Naturopathy
    - E. Nursing
    - F. Optician
    - G. Optometry
    - H. Osteopathy
    - I. Pharmacy
    - J. Physical therapy
    - K. Cosmetology
    - L. Massage
    - M. Dietetics
    - N. X-ray and laboratory technicians
    - O. Midwives
    - P. Veterinary medicine
    - Q. Dental hygiene

NOTE.—An "X" indicates a general exemption provision for all the licensed health professions of the State.

9. Medical students, interns, and residents.
10. Employees in State institutions.
11. Persons rendering service under supervision of a licensed practitioner.
12. Manufacturers or salesmen of health items, e.g. eyeglasses, artificial limbs, drugs.
13. Female midwives (not licensed).
14. Others.
    - a. Guest of State medical association or approved medical school.
    - b. Foreign (from outside United States or Canada) doctors teaching full time in approved medical school.
    - c. Persons in psychology, education, and social work.
    - d. Clairvoyants, hypnotists, and magnetic healers.
    - e. Herbalists.
    - f. Physicians temporarily taking charge of another physician's practice.
    - g. Laboratories.
    - h. Medical corporations.

Statutory exemptions from medical licensure

[See key to tabulated exemptions]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Alabama Code, Title 46, §§ 268, 269, 295	....	x	x	x	x	x	..	....	..	....	..	..	..	
Alaska Stat. §§ 08.64.365, 08.64.37O	....	....	x	x	..	x	x	....	..	....	..	..	..	
Arizona Rev. Stat. §§32.1421	....	....	x	x	..	x	x	A, B, C, D, E, F, G, H, I, J.	x	....	x	..	..	
Arkansas Stat. § 72–604(2)	x	....	..	x	..	x	x	A, B, C, E, G, H, J, K, L.	x	....	..	..	..	
California Bus. and Prof. Code §§ 2137.1–2147.6.	....	....	x	x	..	x	x	C.	x	x	..	..	..	a, b
Colorado Rev. Stat. §91–1–6(3)	x	....	..	x	..	x	x	A, B, C, E, G, and X	x	....	x	..	..	
Connecticut Gen. Stat. Title 20, § 20–9	x	....	x	x	..	x	x	A, C, and X	x	....	..	..	..	
Delaware Code Ann. Title 24, §§1731(c), 1742.	....	....	x	x	..	x	..	A, C, F, I, K, L	x	....	..	x	..	
District of Columbia Code §§ 2–133, 2–134	x	....	x	x	..	x	x	J, L, M, N	..	....	..	x	..	a
Florida Stat. §458.13O	x	....	x	x	..	x	x	A, B, C, D, E, G, H, I, O.	x	x	..	x	..	
Georgia Code Ann. §84–906	....	....	x	x	..	x	x	C, E, F, H, O	..	....	..	..	..	
Hawaii Rev. Laws, Ch. 64, §2	....	....	x	x	..	x	x	....	..	....	..	..	..	
Idaho Code §54–1802, 1807, 1813, 1816	....	....	x	x	..	..	x	I and X	..	[2] x	..	..	..	
Illinois Smith-Hurd. Ann. Stat. Ch. 91, §16f. §16v.	....	....	..	..	..	x	x	C, G, I, and X	..	....	..	..	..	
Indiana Burns Stat. Ann. §63–1310.1311	....	x	x	x	..	x	x	E, G, I, and X	x	....	..	x	..	
Iowa Code §148.2	....	....	x	x	..	..	..	A, B, C, E, G, H, I	x	....	..	x	..	

See footnotes at end of table.

Statutory exemptions from medical licensure—Continued

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Kansas Stat. Ann. §65–2872	....	x	x	x	..	x	x	A, C, E, G, I, L	x	....	x	..	..	c
Kentucky Rev. Stat. §§311.550(8), 311.56	x	....	..	x	..	..	x	A, B, C, E, G, I, O	x	....	..	x	..	
Louisiana Rev. Stat. Title 37, §1290	....	....	x	x	..	x	x	C, H, I	..	....	..	..	x	
Maine Rev. Stat. Ann. Title 32, §3260, §3751	....	....	..	..	x	..	x	....	..	....	..	..	..	
Maryland Ann. Code, Art. 43, §§139, 140	....	[1] x	x	x	..	x	x	A, B, C, F, G, H, J, L, O.	x	....	..	x	..	
Massachusetts Ann. Laws, Ch. 112, §7	x	....	x	x	..	x	x	I, L	x	....	..	..	..	d
Michigan Stat. Ann. §14.538O	....	....	x	x	..	x	x	A, G, H	..	....	..	..	..	
Minnesota Stat. Ann. §147.09	....	....	x	x	..	..	..	....	x	....	..	..	..	
Mississippi Code Ann. §§ 8887, 8888	....	....	..	..	..	..	..	....	..	....	..	..	x	
Missouri, Vernon's Ann. Stat. §§ 334.150, 334.155.	x	....	..	x	..	x	x	A, B, C, E, G, I	..	....	..	..	..	
Montana Rev. Codes §§66–1006, 1007	....	....	x	x	..	..	..	B, H, I	..	....	..	x	x	
Nebraska Rev. Stat. §71–1, 103	....	x	x	x	..	x	x	A, B, C, G, H, and X	x	....	..	..	..	
Nevada Rev. Stat. § 630.360	....	....	x	x	..	x	x	A, B, C, E, G, H, P	..	....	..	..	..	e
New Hampshire Rev. Stat. Ann. §329:21	x	x	x	..	..	x	x	A, E, L	x	....	..	x	..	
New Jersey Stat. Ann. §45:9.21	x	....	..	x	..	x	x	A, C, E, G, I, J, L	x	....	..	..	..	f, g
New Mexico Stat. §67–5–10	....	....	..	x	..	x	x	B, C, G, H	x	x	..	..	x	
New York Educ. L. § 6512	....	x	x	x	..	x	x	A, C, G, P	x	x	..	x	..	h
North Carolina Gen. Stat. §§ 90–18, 90–19	....	....	x	x	..	x	x	A, B, C, G, H, I	..	....	..	..	x	
North Dakota Century Code Ann. § 43–17–02O	....	x	x	x	..	x	x	A, B, C, G, H	x	....	..	..	..	

Ohio Rev. Code §4731.36	....	[1] x	x	x	..	x	..	C	..	....	..	..	..
Oklahoma Stat., Title 59, §492	....	x	x	x	..	x	x	C, G	..	....	x	..	..
Oregon Rev. Stat. § 677.060	....	x	x	x	..	x	x	A, B, C, D, E, G, H, I, J, K.	x	....	..	x	..
Pennsylvania, Purdon's Stat. Ann., Title 63 §409.	....	[1] x	x	x	..	..	..		x	....	..	..	..
Rhode Island Gen. Laws §§5-37-14, 15	....	....	x	x	..	x	x		..	....	..	..	..
South Carolina Code, Title 56, §§ 56-1355, 1372.	....	....	x	x	..	x	x	C, E, F, G, I, O	..	....	..	x	..
South Dakota Code §27.0303	....	....	x	x	..	..	x	C, H	x	....	..	..	..
Tennessee Code Ann. §63-608	....	....	x	x	..	x	x	A, B, F, G, H, O, P	..	....	..	..	..
Texas, Vernon's Ann. Stat., Art. 4504	....	....	x	x	..	..		A, B, C, E, G, I, L	..	....	..	..	..
Utah Code Ann. §58-12-17	....	....	..	x	..	x		A, C, G, I, J	..	....	..	..	..
Vermont Stat. Ann., Title 26, §§1312, 1313	[1] x	x	x	x	..	x	x	B, H	..	....	..	x	..
Virginia Code, Title 54, Ch. 12, §§ 54-274—54-276.7.	....	[1] x	x	x	..	x	x	C, E, G, I, L, O	x	....	..	x	..
Washington Rev. Code §§18.71.030, 18.71.095.	x	....	..	x	..	x	x	C, H	x	x	..	..	x
West Virginia Code §30-3-2	....	....	x	x	..	..	x	A, B, C, E, G, H, O, Q	..	....	..	..	..
Wisconsin Stat. §147. 19	....	....	x	x	..	x	x		..	....	..	..	..
Wyoming Stat. §33-341	....	x	x	x	..	x	x		x	....	..	..	..
Total	12	15	40	47	2	40	43	41	27	6	4	14	6

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[1] If reciprocity. [2] Psychiatric.

Appendix 2.B

Statutory Exemptions for Supervised Delegations

ARIZONA Rev. Stat. § 32–1421 (Supp. 1966):

This chapter shall not be construed to apply to or inhibit: * * * (6) Any person acting at the direction of or under the supervision of either a doctor of medicine or under the supervision of (a U.S. commissioned medical officer or a physician licensed by another State) * * *, so long as he is acting in his customary capacity, not in violation of any statute, and does not hold himself out to the public generally as being authorized to practice medicine.

COLORADO Rev. Stat. § 91–1–6(3) (1963):

Nothing in this section shall be construed to prohibit, or to require a license hereunder with respect to, any of the following acts: * * * (m) The rendering of services under the personal and responsible direction and supervision of a person licensed under the laws of this State to practice medicine or to practice a limited field of the healing arts, but nothing in this exemption shall be deemed to extend the scope of any license.

KANSAS Stat. § 65–2872 (1964):

The practice of the healing arts shall not be construed to include the following classes or persons: * * * (g) Persons whose professional services are performed under the supervision or by order of or referral from a practitioner who is licensed under this act.

OKLAHOMA Stat. tit. 59, § 492 (Supp. 1966):

* * * (N)othing in this article shall be so construed as to prohibit * * * service rendered by a physician's trained assistant, a registered nurse, or a licensed practical nurse if such service be rendered under the direct supervision and control of a licensed physician.

Appendix 3

Licensing agencies for physicians

State and statute	Licensing agency	State department	Total number	Composition of agency					Method of selection						Other occupations licensed by same agency	Financing of agency	
									Appointment by		Recommendation by						
				M.D.'s	Other occupations	Public members	Limitation on faculty	Requirements of practice in State	Governor	Other	Medical society	Other prof. societies	Board itself	Other		Special fund	General fund
Alabama, title 46, §§ 258, 292.	State Board of Medical Examiners.	------------	10	10	------	------	------	X	------	X	X	------	------	------	Osteopaths, Podiatrists, Chiropodists.	X	
Alaska, §§ 35-3-82, 35-3-84, 35-3-95.	Medical Board	------------	5	5	------	------	------	X	X	------	------	------	------	------	None----------	X	
Arizona, § 32-1402—32-1406.	Board of Medicine.	------------	5	5	------	------	------	X	X	------	X	------	------	------	-----do--------	X	
Arkansas, § 72-602, 72-618.	Start Medical Board.	------------	9	9	------	------	X	X	X	------	X	X	------	------	Physical Therapists.	X	
California, §§ 2100-2122.	Board of Medical Examiners.	------------	12	11	------	1	[1]2	------	X	------	X	X	------	------	Psychologists, Podiatrists, Physical Therapists, Registered Dispensing Opticians, Drugless Practioners, Midwives.	X	

See footnotes at end of table.

Licensing agencies for physicians—Continued

State and statute	Licensing agency	State department	Total number	Composition of agency					Method of selection						Other occupations licensed by same agency	Financing of agency	
									Appointment by		Recommendation by						
				M.D.'s	Other occupations	Public members	Limitation on faculty	Requirements of practice in State	Governor	Other	Medical society	Other professional societies	Board itself	Other		Special fund	General fund
Colorado, §§ 91-1-3, 91-1-30.	State Board of Medical Examiners.	Secretary of State.	9	9	------	------	------	X	X	------	X	X	------	------	Osteopaths, Chiropodists, Midwives.	X	
Connecticut, §§ 20-6, 20-8.	Medical Examining Board.	State Department of Health.	5	5	------	------	X	------	X	------	X	X	------	------	None	------	X
Delaware, title 24, §§ 1721, 1706.	State Board of Medical Examiners and Medical Council of Delaware.	------------	12	11	1	------	------	X	X	------	X	X	------	------	Osteopaths	------	X
District of Columbia, title 2, §§ 2-109, 2-135.	Department of Occupations and Professions.	Department of Occupations and Professions.	5	4	1	------	------	X	------	X	------	------	------	------	General licensing agency—not limited to health professions.	X	
Florida, §§ 458.01, 458.02.	State Board of Medical Examiners.	------------	10	10	------	------	X	X	X	------	------	------	------	------	Physical Therapists.	X	
Georgia, §§ 84-902—84-905.	----do--------	Secretary of State.	10	10	------	------	X	X	X	------	------	------	------	------	None	X	

Hawaii, §§ 64-4, 64-5.	Board of Medical Examiners.	Department of Registration Agencies.	7	7	------	------	------	------	X	------	------	------	------	------	----do----------	X
Idaho, §§ 54-1805—54-1809.	State Board of Medicine.	Department of Law Enforcement.	7	6	------	1	------	------	X	------	X	------	------	------	Physical Therapists.	X
Illinois, ch. 91, § 16b-1; ch. 127, § 60a.	Department of Registration and Education.	Department of Registration and Education.	7	5	2	------	1(3)	X	------	X	X	------	------	------	General licensing agency—not limited to health professions; Midwives.	X
Indiana, §§ 63-1304—63-1306.	Board of Medical Registration and Examiners.	------------	7	5	2	------	------	------	X	------	------	------	------	------	Chiropractors, Physical Therapists, Podiatrists, Professional Corp's.	X
Iowa, §§ 147.12-147.25.	State Board of Medical Examiners.	------------	8	6	2	------	X	X	X	------	------	------	------	------	Osteopaths------	X
Kansas, §§ 65-2812—65-2823.	State Board of Healing Arts.	------------	11	5	6	------	------	X	X	------	X	------	------	------	Osteopaths, Chiropractors.	X
Kentucky, §§ 311.040-311.070, 311.610.	State Board of Health.	State Department of Health.	10	6	3	1	------	X	------	X	------	------	------	------	Osteopaths------	X
Louisiana, title 37, §§ 1262-1269.	State Board of Medical Examiners.	------------	5	5	------	------	------	------	X	------	X	------	------	------	Midwives, Podiatrists.	X
Maine, ch. 66, § 1.	Board of Registration in Medicine.	------------	6	6	------	------	X	X	X	------	------	------	------	------	None------------	X

See footnotes at end of table.

Licensing agencies for physicians—Continued

State and statute	Licensing agency	State department	Total number	Composition of agency					Method of selection						Other occupations licensed by same agency	Financing of agency	
									Appointment by		Recommendation by						
				M.D.'s	Other occupations	Public members	Limitation on faculty	Requirements of practice in State	Governor	Other	Medical society	Other prof societies	Board itself	Other		Special fund	General fund
Maryland, Art. 43, §§ 120, 121.	Board of Medical Examiners.	------------	8	8	------	------	X	X	------	X	X	------	------	------	----do----------	X	
Massachusetts, ch. 38, § 1.	Board of Registration in Medicine.	State Department of Health.	7	7	------	------	------	X	X	------	------	------	------	------	Osteopaths-----	X	
Michigan, ch. 120, §§ 14.531, 14.535.	State Board of Registration in Medicine.	------------	10	10	------	------	X	X	X	------	------	------	------	------	None-----------	------	X
Minnesota, § 147.01.	State Board of Medical Examiners.	------------	8	7	1	------	------	------	X	------	X	------	------	------	Osteopaths, Physical Therapists, Midwives, Masseurs.	X	
Mississippi, § 7024.	State Board of Health.	State Board of Health.	10	8	1	1	------	------	X	------	------	------	------	------	Osteopaths, Podiatrists, Osteopathic Surgeons.	X	
Missouri, § 34.120.	State Board of Registration for the Healing Arts.	------------	7	7	------	------	------	X	X	------	------	------	------	------	Osteopaths-----	X	
Montana, § 66-1001.	State Board of Medical Examiners.	------------	7	7	------	------	------	------	X	------	------	------	------	------	Physical Therapists, Podiatrists.	X	

Nebraska, §§ 71-112—71-122.01.	State Department of Health.	------------	6	6	------	------	[4]2	X	------	X	------	------	------	------	Osteopaths, Chiropractors, Dentists, Optometrists, Pharmacists, Podiatrists, Physical Therapists, Embalmers, Veterinarians.	------	
Nevada, title 54, §§ 630.050-630.110.	State Board of Medical Examiners.	------------	5	5	------	------	------	X	X	------	------	------	------	------	None.	X	
New Hampshire, § 329.5.	State Board of Registration in Medicine.	------------	6	5	1	------	------	X	X	------	------	------	------	------	Physical Therapists, Osteopaths.	------	X
New Jersey, § 45:9-1.	State Board of Medical Examiners.	------------	12	9	3	------	------	------	X	------	X	X	------	------	Osteopaths, Chiropractors, Podiatrists, Midwives.	X	
New Mexico, § 67-5-1—67-5-3.	Board of Medical Examiners.	------------	5	5	------	------	------	X	X	------	X	------	------	X	None.	X	
New York, §§ 6503, 6516, Education Law.	State Education Department.	State Education Department.	9	9	------	------	------	X	------	X	------	------	------	------	General licensing agency not limited to health professions.	------	X
North Carolina, §§ 90-2, 90-3.	Board of Medical Examiners.	------------	7	7	------	------	------	------	------	X	------	------	------	------	None.	X	
North Dakota, § 43-17-03.	State Board of Medical Examiners.	------------	9	9	------	------	------	X	X	------	------	------	------	------	do.	X	
Ohio, § 4731.01-4731.03.	State Medical Board.	------------	8	7	1	------	------	------	X	------	------	------	------	------	Osteopaths, Podiatrists, Physical Therapists.	X	

See footnotes at end of table.

Licensing agencies for physicians—Continued

State and statute	Licensing agency	State department	Total number	Composition of agency: M.D.'s	Composition of agency: Other occupations	Composition of agency: Public members	Composition of agency: Limitation on faculty	Composition of agency: Requirements of practice in State	Method of selection: Appointment by: Governor	Method of selection: Appointment by: Other	Method of selection: Recommendation by: Medical society	Method of selection: Recommendation by: Other prof. societies	Method of selection: Recommendation by: Board itself	Method of selection: Recommendation by: Other	Other occupations licensed by same agency	Financing of agency: Special fund	Financing of agency: General fund
Oklahoma, title 59, ch. 11, §§ 481, 482.	State Board of Medical Examiners.	------------	7	7	------	------	X	X	X	------	X	------	------	------	None------------	X	
Oregon, §§ 677.230, 677.290.	Board of Medical Examiners.	------------	7	6	1	------	------	X	X	------	X	------	------	------	Osteopaths-----	X	
Pennsylvania, title 71, § 122.	State Board of Medical Education and Licensure.	Department of State.	7	5	------	2	------	X	X	------	X	------	------	X	None------------	X	
Rhode Island, §§ 5-28-1 to 4, § 5-28-6.	Division of Professional Regulation.	Department of Health.	3	3	------	------	------	------	------	X	------	------	------	------	General licensing agency—not limited to health professions.	------	X
South Carolina, §§ 56-1351, 56-1358.	State Board of Medical Examiners.	------------	8	8	------	------	------	------	X	------	X	------	------	------	Naturopaths, Homeopaths, Magnetic Healers.	X	
South Dakota, §§ 27.0301, 27.0313.	State Board of Medical and Osteopathic Examiners.	------------	5	4	1	------	------	------	X	------	------	------	------	------	Osteopaths, Physical Therapists.	------	X

Tennessee, §§ 63-601 to 63-604.	State Board of Medical Examiners.	------------	5	5	------	------	X	X	X	------	------	------	X	------	None..........	------	X
Texas, Art. 4495-4502.	do	------------	12	12	------	------	X	------	X	------	------	------	------	------	Osteopaths.....	X	
Utah, §§ 58-1-5—58-1-6, 58-1-22.	Department of Registration.	Department of Registration.	5	5	------	------	------	------	------	X	X	X	------	------	General licensing agency—not limited to health professions.	------	X
Vermont, title 26, §§ 1351, 1352, 1355.	Board of Medical Registration.	------------	7	7	------	------	X	X	X	------	X	------	------	------	None..........	------	X
Virginia, §§ 54-282—54-284, 54-294.	Board of Medical Examiners.	------------	16	11	2	[5] 1	------	------	X	------	X	X	------	------	Osteopaths, Chiropractors, Podiatrists, Naturopaths, Physical Therapists.	------	X
Washington, § 43-24.060. *See also* §§ 18.71.040-18.71.060.	Board of Medical Examiners, Division of Professional Licensure.	Department of Motor Vehicles.	5	5	------	------	------	------	X	------	------	------	------	X	General licensing agency—not limited to health professions.	X	
West Virginia, §§ 30-2A-1, 30-2A-5.	The Medical Licensure Board.	------------	11	8	2	[5] 1	------	X	X	------	------	------	------	------	Podiatrists.....	X	
Wisconsin, §§ 147.12, 147.13.	State Board of Medical Examiners.	------------	8	7	1	------	X	------	X	------	X	X	------	------	Physical Therapists, Osteopaths, Podiatrists.	X	
Wyoming, §§ 33-328—33-332.	do	------------	5	4	1	------	------	------	X	------	------	------	------	------	Osteopaths.....	X	

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[1] The lack of a notation indicates the absence of a statutory provision.

[2] May be full time.

[3] Must be full time.

[4] Must be faculty members.

[5] Ex officio.

Appendix 4

Educational and professional qualifications for licensure (M.D.'s)

State and statutory citation	A. U.S. medical graduates								B. Foreign medical graduates						
					Medical school curricula										
	High school	College	Basic science certificate	Medical school	Subjects	Months, weeks, or hours	Internship	Graduate medical education	English proficiency	Basic science certificate	Medical school	Graduate medical education requirement	ECFMG certificate	State board examination	Existing license
Alabama, title 46, § 259	X	2 years.	X	X	--------	--------	X	--------	--------	X	X	[7]1	(7)	X	
Alaska, § 35-3-85	--------	--------	X	X	--------	--------	X[1]	--------	--------	X	--------	[1]1	--------	X	
Arizona, §§ 32-1423-32-1424.	X	X	X	X	--------	--------	X[2]	X[2]	X	X	X	2	X	(7)	
Arkansas § 72-605	--------	--------	X	X	--------	--------	X[3]	--------	(10)	(10)	(10)	(10)	(10)	(10)	(10)
California, §§ 2168.5-2173, 2191, 2192, 2193, 2193.5.	X	3 years.	--------	X	X	X	X	--------	--------	--------	X	2	--------	X	X
Colorado, §§ 91-1-7—91-1-10.	--------	--------	X	X	--------	--------	X	--------	--------	X	X	[7]1;2	X	X	
Connecticut, § 20-10	X	2 years.	X	X	X	X	(7)	--------	--------	X	--------	[7]3	--------	X	
Delaware, title 24, §§ 1732-1733.	X	---do---	--------	X	--------	--------	X	--------	--------	--------	X	1	X	(7)	
District of Columbia, title 2, § 2-122.	X	---do---	X	X	--------	--------	X	--------	--------	X	X	1	X	(7)	
Florida, § 458.05	--------	--------	X	X	--------	--------	X	--------	--------	X	X	[1]1	X	X	
Georgia §§ 84-907, -910, -911.	X	2 years.	--------	X	X	X	X	--------	--------	--------	--------	1	X	(7)	
Hawaii, § 64-3	--------	--------	--------	X[4]	--------	--------	X	X[5]	--------	--------	--------	3	X	(7)	
Idaho, § 54-1806	X	X	--------	X	--------	--------	X	--------	--------	--------	--------	[9]X	X	(7)	
Illinois, ch. 91, § 5	X	2 years.	--------	X	--------	X	X	--------	--------	--------	X	1	--------	(7)	X
Indiana, §§ 63-1306, -1306a.	X	--do--	--------	X	--------	--------	--------	--------	--------	--------	X	[7]2	--------	X	X

Iowa, § 148.3	X	X	X	X[6]	--------	--------	X	--------	--------	X	X	1	X	X	
Kansas, §§ 65-2824, 65-2804.	X	X	X	X	--------	--------	X	--------	--------	X	--------	[7]1	--------	(7)	
Kentucky, § 311.570	X	--------	--------	X	--------	X	X	--------	--------	--------	X	5	X	X	
Louisiana, title 37 § 1271	--------	2 years	--------	X	--------	--------	--------	--------	(10)	(10)	(10)	(10)	(10)	(10)	(10)
Maine, ch. 66, § 4	--------	--------	--------	X	--------	--------	X	--------	--------	--------	--------	[7]1	X	(7)	
Maryland, art. 43, § 124	X	X	--------	X	X	--------	--------	--------	--------	--------	X	[7]3	X	X	X
Massachusetts, ch. 112, § 2.	X	2 years	--------	X	--------	X	--------	--------	--------	--------	X	--------	X	(7)	
Michigan, ch. 120, § 14.533.	X	X	X	X	X	--------	X	--------	--------	X	--------	1	X	X	X
Minnesota, § 147.02	X	2 years	--------	X	--------	X	--------	--------	--------	X	--------	[7]2	X	(7)	
Mississippi, § 8879	--------	--------	--------	X	--------	X	--------	--------	--------	--------	--------	--------	X	(7)	
Missouri, § 334.031	X	2 years	--------	X	--------	X	--------	--------	--------	--------	X	[7]1	X	(7)	
Montana, § 66-1003	X	X	--------	X	--------	--------	X	--------	--------	--------	X	[7]1	X	X	
Nebraska, §§ 71-1, 104; 71-103, 71-128.	X	2 years	X	X	X	X	--------	--------	--------	X	--------	--------	X	(7)	
Nevada, title 54, §§ 630.160, 630.170.	--------	--------	X	X	--------	--------	X[1]	--------	(10)	(10)	(10)	(10)	(10)	(10)	(10)
New Hampshire, § 329:12	X	2 years	--------	X	--------	X	X	--------	--------	--------	--------	1	X	(7)	
New Jersey, §§ 45:9-6, 45:9-8.1.	X	do	--------	X	--------	--------	X[2]	X[2]	--------	--------	X	1	--------	X	
New Mexico, § 67-5-4	--------	--------	X	X	--------	--------	--------	--------	--------	X	X	--------	X	(7)	
New York, § 6506—educational law.	X	2 years	--------	X	--------	X	--------	--------	--------	--------	X	[7]1-2	X	(7)	X
North Carolina, §§ 90-6:90-11.	--------	--------	--------	X	--------	X	--------	--------	--------	--------	--------	--------	X	(7)	
North Dakota, § 43-17-18	X	2 years	--------	X	--------	X	X	--------	--------	--------	--------	1	X	X	
Ohio, § 4731.09	X	do	--------	X	--------	--------	--------	--------	--------	--------	--------	2	X	X	
Oklahoma, title 59 § 493	X	X	X	X	--------	--------	X[3]	--------	--------	X	X	[7]1	X	(7)	
Oregon, § 677.100	X	2 year	X	X	--------	X	X	--------	--------	X	X	1	X	(7)	
Pennsylvania, title 63 § 405.	X	do	--------	X	--------	X	X	--------	--------	--------	X	1	X	(7)	
Rhode Island, § 5-37-2	X	do	X	X	--------	--------	(7)	--------	--------	X	X	[7]2	X	(7)	
South Carolina, § 56-1357	--------	--------	--------	X[6]	--------	--------	--------	--------	--------	--------	--------	(9)	X	(7)	

See footnotes at end of table.

Educational and professional qualifications for licensure (M.D.'s)—Continued

State and statutory citation	A. U.S. medical graduates								B. Foreign medical graduates						
					Medical school curricula										
	High school	College	Basic science certificate	Medical school	Subjects	Months, weeks, or hours	Internship	Graduate medical education	English proficiency	Basic science certificate	Medical school	Graduate medical education requirement	ECFMG certificate	State board examination	Existing license
South Dakota, § 27.0302	X	X	X	X	--------	--------	X[1]	--------	--------	X	--------	([9])	X	X	
Tennessee, § 63-611	--------	--------	X	X	--------	--------	--------	--------	--------	X	--------	--------	X	([7])	
Texas, arts. 4501, 4503	X	2 years	X	X[6]	X	X	--------	--------	--------	X	--------	--------	X	([7])	
Utah, §§ 58-12-2, 58-12-5, 58-12-9, 58-27-8.	X	3 years	X	X	--------	X	X	--------	--------	X	--------	[7]3	X	X	
Vermont, title 26 §§ 1391, 1392, 1396.	X	2 years	--------	X	X	X	X[3]	--------	--------	--------	--------	[8]1	X	X	
Virginia, §§ 54-305, 54-306.3.	X	do	--------	X	--------	X	--------	--------	--------	--------	--------	2	X	([7])	
Washington, §§ 18.17.050, 18.17.055.	X	do	X	X	X	--------	X	X[5]	X	X	--------	1	X	X	
West Virginia, § 30-3-4	X	do	--------	X	--------	--------	X	--------	--------	--------	X	[7]1	X	X	
Wisconsin, § 147.15	X	5 years	X	X	--------	--------	X	--------	--------	X	X	X	X	X	
Wyoming, § 33-333	--------	--------	--------	X	--------	--------	--------	--------	--------	--------	--------	[7]1	X	X	

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[1] In lieu of internship, a specified number of years of practice is acceptable.

[2] In lieu of internship, graduate medical education acceptable to the board or at the discretion of the board.

[3] Internship voluntary or discretionary with board.

[4] In lieu of graduation from approved medical school, practice in another State or medical service with Armed Forces or Public Health Service for 7 of 11 years preceding application.

[5] Certificate of familiarity with Hansen's Disease required.

[6] Approval of medical school not required.

[7] Required according to statistics based upon actual practices as opposed to the statutes alone compiled by the Council on Medical Education, Medical Licensure Statistics for 1966. 200 J.A.M.A. 1055, 1106 (1967).

[8] Supplementary requirement of experience in obstetrics and pathology.

[9] Length of internship not specified by statute.

[10] Not accepted.

Appendix 5

Endorsement Policies of Medical Licensing Boards For Graduates of American and Canadian Medical Schools including List of Officers of State Licensing Boards, June 6, 1966

Endorsement Policies of Medical Licensing Boards For Graduates of American and Canadian Medical Schools including List of Officers of State Licensing Boards, June 6, 1966

COUNCIL ON MEDICAL EDUCATION

Appendix Table 2.—Endorsement Policies of Medical Licensing Boards for Graduates of American and Canadian Medical Schools

Marginal Number	The Examining Board of	Reciprocates With, or Endorses Certificates Granted by																											
		Alabama	Alaska	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. of Col.	Florida	Georgia	Hawaii	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska
1	Alabama	—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2	Alaska	+	—	..	+	+	+	+	+	+	..	+	..	..	..	+	+	+	+	..	..	+	..	+	+	+	+	..	+
3	Arizona	..	..	—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
4	Arkansas	+	+	+	—	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
5	California	..	..	..	..	—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
6	Canal Zone	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
7	Colorado	+	..	+	+	+	—	+	+	+	..	+	..	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+
8	Connecticut	+	+	+	+	+	+	—	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
9	Delaware	..	..	..	..	..	..	..	—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10	Dist. of Col.	..	..	..	..	..	..	..	..	—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
11	Florida	No reciprocity or endorsement policies										..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
12	Georgia	+	+	..	+	+	+	..	+	+	..	—	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
13	Guam	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
14	Hawaii	No reciprocal relations						..	..	..	..	..	—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
15	Idaho	..	..	..	..	..	..	..	..	..	..	..	..	—	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16	Illinois	..	..	..	..	..	..	..	..	..	..	..	..	..	—	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17	Indiana	+	+	+	+	+	+	+	+	+	+	+	+	+	+	—	+	+	+	+	+	+	+	+	+	+	+	+	+
18	Iowa	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	—	..	..	..	..	..	..	..	..	..	..	..	..
19	Kansas	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	—	..	..	..	..	..	..	..	..	..	..	..
20	Kentucky	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	—	..	..	..	..	..	..	..	..	..	..
21	Louisiana	+	..	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	—	+	+	+	+	+	+	+	+	+
22	Maine	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	—	+	+	+	+	+	+	+	+
23	Maryland	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	—	..	..	..	..	..	..	..
24	Massachusetts	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	—	+	+	+	+	+	+
25	Michigan	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	—	+	+	+	+	+

26	Minnesota	+	+	+[16]	+	+	+[16]	+[16]	+	+	..	+	..	+[16]	+	+[16]	+	+[16]	+[16]	+	+	+	+	+	−	+	+	+	+
27	Mississippi	+	..	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	+	+	+	+	−	+	+	+
28	Missouri	+	..	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	−	+	+
29	Montana	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	−	+
30	Nebraska	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	−
31	Nevada	+	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+
32	New Hampshire	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
33	New Jersey	+	..	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+
34	New Mexico	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
35	New York	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
36	North Carolina	+	..	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
37	North Dakota	+	+	..	+	+	+	..	+	..	..	+	..	+	+	+	+	+	+	+	+	..	+	+	+	..	+	+	+
38	Ohio	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
39	Oklahoma	..	+[16]	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
40	Oregon	+	+	+	+	+	+	+	+	..	..	+	..	+	+	+	+	+[16]	+	+	+	+	+[16]	+	+	+	+	+	+
41	Pennsylvania	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
42	Puerto Rico	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
43	Rhode Island	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
44	South Carolina	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
45	South Dakota	+	..	+	+	+	+	..	+	+	..	+	..	+	+	+	+	+	+	+	+	..	..	+	+	+	+	+	+
46	Tennessee	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
47	Texas	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
48	Utah	+	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
49	Vermont	+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
50	Virginia	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
51	Virgin Islands	No reciprocal relations						..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
52	Washington	..	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
53	West Virginia	+	+	+	+	+	+	+	+	+	..	+	..	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
54	Wisconsin	+	+	+	+	+	+	+	+	+	..	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
55	Wyoming	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

This summary should be verified by direct communication with the secretary of

+ Indicates reciprocal or endorsement relationships have been established; . . indicates no reciprocal or endorsement relationships have been established. (See column "At the Discretion of the Board.")

1. D—Declaration of intention of citizenship ⊕ in citizenship column indicates full citizenship required; in other columns it implies a requirement.
2. In most cases there is a small additional recording or registration fee.
3. Year of practice after licensure required.
4. Internship accepted in lieu of one year of practice.
5. Just preceding application.
6. All applicants must be graduates of a medical school approved by the American Medical Association.
7. Graduates of approved schools in the US and Canada can be licensed by reciprocity if the state credential on which the application is based was issued in the same manner as the credential issued by the California or Virginia Board.
8. Not required if applicant has been in practice more than 5 years.
9. Canadian citizens are required to file first papers.
10. Not applicable to citizens of Canada.
11. Oral examination required when application is based on a Diplomate certificate dated five or more years prior to filing application.
12. Must be residents of the Canal Zone or Republic of Panama.
13. Oral examination (or interview) required.

Endorsement Policies of Medical Licensing Boards For Graduates of American and Canadian Medical Schools including List of Officers of State Licensing Boards, June 6, 1966—Continued

COUNCIL ON MEDICAL EDUCATION

Appendix Table 2.—Con.

Reciprocates With, or Endorses Certificates Granted by																										Requirements						
Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Puerto Rico	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	At the Discretion of the Board	National Board of Medical Examiners	Basic Science Certificate	One Year Internship	Professional Practice (Years)	Citizenship[1]	Fees, Dollars[2]	Other Factors	Marginal Numbers
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	⊕	⊕	1[4]	⊕	100		1
+	+	+	+	..	+	+	+	+	+	..	..	..	+	..	+	+	+	+	+	+	+	+	..	..	+	⊕	⊕	0	⊕	110	[6]	2
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	⊕	⊕	3	⊕	150	[6]	3
+	+	+	+	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	..	..	⊕	..	1[4]	⊕	100		4
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[7]	+[11]	..	⊕	0	..	100[14]		5
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	⊕	2	12	10		6
+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	..	+	+	⊕	⊕	..	⊕	50		7
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	⊕[8]	..	3[6]	D	100		8
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	⊕	2	⊕	150		9
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	⊕	⊕	1[8]	..	50		10
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	⊕	⊕	..	⊕	..		11
+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	..	..	..	⊕	0	⊕	100		12
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	⊕	0	..	50	[6]	13
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	..	⊕	..	D	50	[22]	14
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	⊕	..	D	150		15
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+[15]	..	⊕	..	..	150		16
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	..	1[4]	D	100	[24]	17
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+[19]	+	⊕	⊕	1[4]	D	100	[17]	18
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	⊕	⊕	1[4,5]	⊕	50[27]		19
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	⊕	..	⊕	75		20
+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	..	..	..	..	1[4]	⊕[9]	100		21
+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	⊕	1[4]	..	100		22
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	..	D	50		23
+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	..	0	D	75		24
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	⊕[28]	⊕	1[4]	⊕	100	[28]	25

+	+[16]	+	+	+[16]	+	+	+[16]	+	+	+	..	+[16]	+	+	+	+	+	+	+	+	+	+	+	+	+[15]	⊕	⊕	0	D	100	[16]	26
+	+	+	+	..	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	..	..	⊕[10]	50		27
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	⊕	1[4]	⊕	100	[22]	28
+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	⊕	1[4]	⊕[9]	100	[18]	29
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	⊕	..	1[4]	⊕	50		30
−	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	..	+	⊕	⊕	0	D	200	[18]	31
..	−	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	⊕	0	D	50		32
+	+	−	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	⊕	0	⊕	50		33
+	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	⊕	..	1[4]	D	100		34
..	..	..	..	−	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	..	2	D	40	[20]	35
+	+	+	+	+	−	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	..	0	⊕[18]	100		36
+	+	+	+	..	+	−	+	+	+	+	+	..	+	+	..	+	+	+	+	+	+	+	+	+	+	..	⊕	1	D	100	[18]	37
+	+	+	+	+	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	..	..	1	⊕	100		38
..	..	..	..	..	..	..	..	−	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	⊕	1[4]	⊕	100	[6]	39
+	+	+	+	+	+	+	+	+	−	+	..	+	+	+	+	+	+	+	+	+	+	+	+	+	+	⊕	⊕	..	D	100	[6]	40
..	..	..	..	..	..	..	..	..	..	−	..	..	..	..	..	..	..	..	..	..	..	..	..	+	+	..	⊕	1[20]	D	75[2]		41
..	..	..	..	..	..	..	..	..	..	..	−	..	..	..	..	..	..	..	..	..	..	..	..	+[19]	+	..	⊕	1[8]	⊕	30		42
+	+	+	+	+	+	+	+	+	+	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+	+	⊕	⊕	0	D	50	[18]	43
+	+	+	+	+	+	+	+	+	+	+	+	+	−	+	+	+	+	+	+	+	+	+	+	+	+	..	..	1[4]	⊕	100		44
+	..	+	+	+	+	+	+	+	+	+	..	+	+	−	+	+	+	+	+	+	+	+	+	+	+	⊕	⊕	1	D	90		45
+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	−	+	+	+	+	+	+	+	+	+	+	⊕	..	0	⊕	100		46
+	+	+	+	+	+	+	+	+	+	+	..	..	+	+	+	−	+	+	+	+	+	+	+	+	..	⊕	..	0	D	100	[20]	47
+	+	+	+	..	+	+	+	+	+	+	..	+	+	+	+	+	−	+	+	+	+	+	+	+	+	⊕	⊕	..	..	50		48
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	−	+	+	+	+	+	..	+	⊕	⊕	..[4]	D	50		49
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	−	+	+	+	+	+[7]	+	..	..	2[21]	D	100		50
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	⊕	..	..	65		51
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	−	..	..	..	+	+	⊕	⊕	0	..	25		52
+	+	+	+	+	+	+	+	+	+	+	..	+	+	+	+	+	+	+	+	+	−	+	+	+	+	..	⊕	0	⊕	100		53
+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	−	..	+	+	⊕	⊕	..	D	100	[6,18]	54
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	−	+	+	..	⊕	0	⊕[18]	75	[18]	55

the licensing board of the state in which the physician is interested. See page 1074.

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14. In addition, California requires a $10 filing fee and $30 initial fee.
15. Practical clinical examination required.
16. At the discretion of the board.
17. Permanent license withheld until completion of internship.
18. May be waived at the discretion of the board.
19. Reciprocity extended at the discretion of boards to candidates whose qualifications would entitle them to admission to examination and who took examination equivalent to that required by this board.
20. If the applicant passes the examination in the state from which he transfers after the completion of his internship, no practice is required.
21. Internship accepted at the discretion of the board as the equivalent of two years' practice.
22. Residence for one year required.
23. Supplemental examination required in certain cases when accepting the examination of a state with whom reciprocal relations have not been established.
24. Must meet requirements of the board and hold a valid license obtained by written examination.
25. For matriculants after Oct 15, 1937.
26. Endorses 32 states fully; remaining partially.
27. Amount charged by the endorsing state.
28. Puerto Rico license accepted if obtained prior to June 30, 1963.

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Appendix 6

The State Board of Medical Examiners has the authority to suspend or revoke licenses except where indicated by footnotes 1 to 16.

Statutory provisions which vary from the table are indicated in notes A to D.

Medical disciplinary proceedings

	Procedures for disciplinary action								Some offenses subject to disciplinary action										
	Powers of revoking body				Privileges of defendant			Appeal											
States	Charges may be brought by others	May call on government attorney for representation	May administer oaths, issue subpoenas, etc.	May utilize injunctive procedure	Entitled to notice	Entitled to copy of charges	Entitled to representation by counsel	Appeal to courts by revoking body or defendant	Unprofessional conduct generally	Conviction of felony	Conviction of an offense involving moral turpitude	Drug Addiction	Alcoholism	Committing or assisting in an abortion	Fraud in application, examination or obtaining license	Specified types of advertising	Mental illness	Betrayal of a professional secret	Medical professional liability
Alabama [1]	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	------
Alaska	X	X	X	------	X	X	X	------	------	------	X	X	X	X	X	X	------	X	------
Arizona	X	------	X	X	X	X	------	X	X	------	X	X	X	X	X	X	X	X	X
Arkansas	X	------	X	X	X	X	X	X	------	X	X	X	X	X	X	X	X	X	X
California	------	X	X	------	X	X	X	X	X	X	X	X	X	X	X	X	X	X	------
Colorado	X	------	X	------	X	X	X	X	X	X	X	X	X	X	X	X	X	------	X
Connecticut [2]	X	X	X	------	X	X	X	X	X	X	X	X	X	------	X	X	X	------	X
Delaware [3]	X	X	X	------	X	X	------	X	X	X	------	X	X	------	X	X	X	X	------
District of Columbia	X	------	------	X	------	------	------	X	X	X	------	------	------	------	------	------	------	------	------
Florida	X	------	X	X	X	X	X	X	X	X	------	X	X	X	X	X	X	------	------

See footnotes at end of table.

Medical disciplinary proceedings—Continued

	Procedures for disciplinary action								Some offenses subject to disciplinary action										
	Powers of revoking body				Privileges of defendant			Appeal											
	Charges may be brought by others	May call on government attorney for representation	May administer oaths, issue subpoenas, etc.	May utilize injunctive procedure	Entitled to notice	Entitled to copy of charges	Entitled to representation by counsel	Appeal to courts by revoking body or defendant	Unprofessional conduct generally	Conviction of felony	Conviction of an offense involving moral turpitude	Drug Addiction	Alcoholism	Committing or assisting in an abortion	Fraud in application, examination or obtaining license	Specified types of advertising	Mental illness	Betrayal of a professional secret	Medical professional liability
Georgia	X	------	X	X	X	X	X	X	X	------	X	X	X	X	X	X	X	------	------
Hawaii	------	------	X	------	X	X	------	------	X	X	X	X	X	X	X	X	------	X	------
Idaho	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Illinois [4]	X	------	X	X	X	X	X	X	------	X	------	X	X	X	X	------	X	------	X
Indiana [5]	X	X	------	X	X	X	------	X	X	X	------	X	X	------	X	------	------	------	------
Iowa	X	X	X	------	X	X	X	X	X	------	X	X	X	X	X	X	------	X	------
Kansas [6]	------	X	X	X	X	X	X	X	X	X	------	X	X	X	X	X	------	X	------
Kentucky [7]	------	X	X	X	X	------	X	X	X	------	X	X	X	X	X	------	X	------	------
Louisiania [3]	------	------	X	X	------	------	------	------	------	X	------	X	X	X	X	X	X	------	------
Maine [8]	------	------	------	------	------	------	------	------	X	X	X	X	------	------	X	X	X	------	------
Maryland	------	X	------	------	X	X	X	X	X	------	X	X	X	X	X	X	X	------	------
Massachusetts [8]	X	------	X	------	X	------	X	X	X	X	X	X	X	------	X	X	X	------	X
Michigan [8]	------	------	X	------	X	------	------	------	------	X	X	X	X	X	X	X	X	X	------
Minnesota	------	------	------	------	------	------	------	X	X	X	X	X	------	X	------	X	------	X	------
Mississippi [7]	X	------	------	------	------	------	------	------	X	X	X	X	X	X	X	------	------	------	------
Missouri [6]	X	X	X	X	X	X	------	X	X	------	X	X	X	X	X	X	X	------	------
Montana	------	X	------	------	X	------	X	X	------	------	------	------	------	------	------	------	------	------	------
Nebraska [7]	X	X	X	X	X	X	X	X	X	X	------	X	X	X	X	X	------	X	------
Nevada	X	------	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	------	X

New Hamsphire	--------	------	X	------	X	X	------	------	X	X	------	------	------	------	X	------	X	------	X
New Jersey [2]	--------	X	X	X	X	X	X	------	------	------	X	X	X	X	X	X	X	------	------
New Mexico	--------	------	X	X	X	X	X	X	X	X	X	X	------	X	------	X	X	X	------
New York [9]	X	------	X	------	X	X	X	X	X	A	A	X	X	X	X	X	X	------	------
North Carolina	--------	X	X	X	X	X	X	X	X	X	X	X	------	X	X	X	X	------	------
North Dakota	--------	X	X	X	X	X	------	X	X	X	------	X	X	X	X	X	X	X	------
Ohio	--------	X	------	------	------	------	------	------	X	X	------	X	X	------	X	X	------	X	------
Oklahoma	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	------
Oregon	X	X	X	X	X	X	X	X	X	X	------	X	X	X	X	X	X	X	------
Pennsylvania [10]	--------	------	------	X	X	X	X	------	X	------	X	X	X	X	------	------	B	------	------
Rhode Island [11]	--------	------	X	------	X	------	------	X	X	C	C	------	------	------	X	------	------	------	------
South Carolina	--------	------	X	------	X	------	------	X	X	D	D	X	X	------	------	------	------	------	------
South Dakota [12]	X	------	------	X	X	X	------	X	X	X	X	X	X	X	------	X	X	X	------
Tennessee [1]	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	------	X	------
Texas	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	------	------	X
Utah [13]	--------	------	X	X	X	X	------	X	X	------	X	X	X	X	X	X	------	X	------
Vermont [14]	X	------	------	------	------	------	------	------	X	------	X	X	X	X	X	X	------	------	------
Virginia	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	------	X
Washington [15]	X	X	X	------	X	X	X	X	X	------	X	X	X	X	X	X	X	X	X
West Virginia	X	------	X	------	X	X	------	X	X	X	------	X	X	------	X	------	------	------	X
Wisconsin [2, 16]	--------	X	X	X	------	------	------	------	X	X	X	X	------	X	X	X	------	X	------
Wyoming	X	X	X	X	X	X	X	X	X	X	------	X	X	X	X	X	X	X	------
Total	30	26	40	29	43	38	29	39	45	38	36	47	42	39	44	40	32	24	13

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[1] Board of Examiners for the Healing Arts and the Board of Medical Examiners.

[2] Revocation by court.

[3] Medical Council.

[4] Department of Registration and Education.

[5] Board of Medical Registration and Examination.

[6] Board of Healing Arts.

[7] Board of Health.

[8] Board of Registration and Medicine.

[9] Department of Education—Board of Regents.

[10] Bureau of Medical Education and Licensure.

[11] Department of Health.

[12] Board of Medical and Osteopathic Examiners.

[13] Department of Registration.

[14] Board of Medical Registration.

[15] Medical Disciplinary Board.

[16] Board of Medical Examiners may revoke license when defendant is convicted of a crime.

NOTES—

A. Conviction of crime.

B. Any condition which impairs intellect and judgment to such extent as to incapacitate for performance of professional duties.

C. Violation of State law.

D. Conviction of illegal practices.

Appendix 7

Disciplinary action. Digest of legislative changes, 1957–65

State	Procedures	Grounds
Alabama	1. Investigation with as little publicity as practicable, consistent with fair and impartial hearing, but person whose qualification is under consideration may elect full public hearing. Alabama Code, title 46, sec. 271 (1960).	[1] 1. If the person whose qualification is under consideration is found to be mentally incompetent to a degree and of a character which renders such person unsafe or unreliable as a practitioner. Alabama Code, title 46, sec. 270 (1960). (Same as before; added merely that State licensing board shall be advised of suspension or revocation.)
Arizona	....	1. Gross malpractice, repeated malpractice or any malpractice resulting in the death of a patient. Ariz. Rev. Stats., sec. 32–1401 (1964).
Arkansas	....	1. Becoming physically or mentally incompetent to practice medicine to such an extent as to endanger the public. Ark. Stats., sec. 72–613(10) (1965). (This instead of possession, use, or distribution of narcotics.) 2. Aiding or abetting an unlicensed person to practice medicine, sec. 72–613(3). (This instead of presentation or use of a license fraudulently obtained.)
California	[1] 1. Authority of Board to place certificate holder on probation includes the power to require certificate holder to submit to complete diagnostic examination by one or more physicians and surgeons appointed by the Board. Board must also consider reports of medical	[1] 1. Adjudication of insanity or mental illness or the voluntary commitment or admission to a State hospital of any licentiate shall operate as a suspension of the right to practice of any certificate holder under this chapter, such suspension to continue until restoration to or declaration

	examination by physician of certificate holder's choice. Calif. B &P Code, sec. 2372.5 (1965).	of sanity or mental competence * * * Before reinstatement, Board may require an oral or written examination or both to determine fitness to resume practice. Calif. B &P Code, sec. 2416 (1965). Also sec. 2417: If certificate holder becomes mentally ill to extent he requires supervision or restraint or to the extent that he is dangerous to himself or others, Board may suspend judgment, place him on probation, suspend right to practice for period not exceeding 1 year, revoke certificate or take such other action as Board deems proper.
olorado............	1. Public announcement of new rules; announcement of authority under which rules are promulgated; opportunity for hearing on rules; "a rule shall not be deemed within the statutory authority and jurisdiction of the agency merely because such rule is not contrary to the specific provisions of the statute." Colo. Rev. Stats., sec. 3-16-2 (1959). 2. Provision for revocation of license without notice and hearing, with hearing procedures immediately afterwards, where licensee has been guilty of deliberate or willfull violation or where the public health, safety or welfare imperatively demand emergency action. Colo. Rev. Stats., sec. 3-16-3 (1959). 3. Judicial review. Provision for postponement of order of agency in cases of irreparable injury and for injunction against agency on showing of irreparable injury. Colo., sec. 3-16-5 (1959).	

See footnote at end of table.

Disciplinary action. Digest of legislative changes, 1957–65—Continued

State	Procedures	Grounds
elaware...........	....	[1] 1. Any physical or mental disability which renders the further practice of medicine by the licensee dangerous. Del. Code Ann., sec. 1741(7) (1960). [1] 2. Mental incompetence or mental illness, when determined by any final order or adjudication of any court of competent jurisdiction—automatic suspension and such suspension shall continue (anything in the act to the contrary not withstanding) until court adjudication that he is restored to reason or until discharged from hospital as restored to reason. Del. Code Ann., sec. 1741(8) (1960).
lorida.............	1. Power of Board to grant rehearings, if applied for within 30 days, on questions of fact determined by the Board. Fla. Stats., sec. 458.12(f)(3).	[1] 1. Adjudged insane by court of competent jurisdiction (within or without the State). Disqualification obtains so long as such adjudication remains in force and the disabilities of such person have not been judicially restored; unless the Board shall, after a full hearing, order otherwise. Fla. Stats., sec. 458.12(k)(1).

	2. Provision for temporary suspension of license without hearing in cases where the officers of the Board deem the evidence unequivocal, provided full hearing is held within 60 days, in cases of fraud in practice of medicine, conviction of felony, addiction to narcotics and liquor, procuring, aiding or abetting in procuring an abortion, adjudged insane. Fla. Stats., sec. 458.121(7).	
Georgia............	....	1. Sustaining any physical or mental disability which makes further practice dangerous. Georgia Code Ann., sec. 84–916(15) (1957). [1] 2. Filing with Board of final order of adjudication by court as to licentiate's mental incompetence requires automatic suspension of license until licentiate is adjudged restored to reason by court or discharged from hospital as restored to reason. Georgia Code Ann., sec. 84–916.
Iowa...............	1. As an alternative to procedure of filing with District Court petition for revocation of license, medical examiners, after notice and hearing, may issue an order directing the Commissioner of Public Health to revoke, suspend, or place on probation. Iowa Code, sec. 148.6 (1957). 2. Provision for voluntary surrender of license if accompanied by statement of intention. Same effect as a revocation. Iowa Code, sec. 148.8 (1957).	

See footnote at end of table.

Disciplinary action. Digest of legislative changes, 1957–65—Continued

State	Procedures	Grounds
ne..............	[1]1. If a licensed physician becomes mentally ill and is under the care of a licensed physician in this State, the attending MD must make an immediate report to the Department of Health and Corrections whether or not the patient is hospitalized by any method in any hospital. Department shall immediately make an investigation of the mental condition of patient and file a report with Board of Registration in Medicine as to patient's ability to practice. If report says ability to practice is seriously interfered with, 5 days' notice of hearing. Two-thirds vote of Board required to suspend license. Board may voluntarily restore license when it receives report from Department that patient's condition no longer interferes with his ability to practice. When a physician is hospitalized outside the State of Maine and Board learns of this fact, it may require Department to investigate. Maine Rev. Stats., ch. 271, sec. 7–A (1963).	
ryland...........	[1]1. Insanity and narcotics addiction added as grounds for revocation. Revocation proceedings already adjudicated are not to be reviewed, but both party and Board have right of appeal from decision of Circuit Court to Court of Appeals. Maryland Stats., sec. 145 (1957).	

Minnesota		1. Temporary certificate can be revoked only for violation of provisions of this act or provisions of Minn. Stat., sec. 147.02 re immoral conduct. Minn. Stats., sec. 147.19 (1957).
Mississippi	1. Procedural steps spelled out in detail. Board's power to subpoena, petition of aggrieved party for court review, provisions for restoration of revoked license. Mississippi Code, sec. 8893 (1964). Notice and opportunity to be heard. Prompt hearing.	1. Abortion that is not medically indicated. Mississippi Code, sec. 8893(5) (1964). N.B. Formerly, an abortion that is not necessary to preserve the life of the woman.
Missouri	1. New power of Board to place licensee "on probation" in addition to revocation or suspension. Mo. Ann. Stats., sec. 334.100 (1963).	
Montana	1. An appeal from the Board's decision is tried by the District Court before a jury of 6 physicians. Rev. Code of Montana, sec. 66.1004 (1961). This amendment deletes the former requirement that of the 6 not less than 2 shall be of the same school of medicine.	
Nebraska	1. Procedural requirements re mental illness or mental deterioration: Investigation by Director of Department of Health; if reasonable cause to believe found, Board appoints committee of 3 qualified psychiatrists to examine and report to Board. Nebr. Rev. Stats., sec. 71-1, 104.02 (1965). License may be reinstated if Board finds doctor mentally qualified to engage in practice. Sec. 71-1, 104.03 (1965); right to appeal to courts, sec. 71-1, 104.05.	[1] 1. Automatic suspension of license when licensee is found not qualified to practice medicine because of mental illness or mental deterioration. Nebr. Rev. Stats., sec. 71-1, 104.01 (1965). Refusal to submit to examination by psychiatrist is grounds for suspension of license, sec. 71-1, 104.04.

See footnote at end of table.

Disciplinary action. Digest of legislative changes, 1957–65—Continued

State	Procedures	Grounds
New Jersey..........	....	1. Physician has been found guilty of employing unlicensed persons to perform work which, under this chapter can legally be done only by persons licensed to practice medicine and surgery or chiropractic in this State. N.J. Rev. Stats., sec. 45: 19–16 (1957). 2. Physician has been found guilty of gross malpractice or gross neglect in the practice of medicine, which has endangered the health or life of any person. N.J. Rev. Stats., sec. 45: 19–16 (1957). (Before this amendment, malpractice was not a ground for suspension or revocation).
New Mexico.........	* 1. Clerk of court "entering the order of commitment of some court of competent jurisdiction establishing the insanity or mental illness * * *" required certified copy to Board of Medical Examiners. N. Mex. Stats., sec. 67–5–25 (1961). Suspension shall continue and Board shall not restore former practitioner to privilege of practice until: (1) Board receives competent evidence that the former practitioner if not mentally ill; and (2) Board is satisfied that privilege may be safely restored. Board may set terms and conditions for restoration. N. Mex. Stats., sec. 67–5–26 (1961).	* 1. On grounds of entry of a "decree by a court of competent jurisdiction within or without the State establishing the insanity or mental illness of any person holding license". N. Mex. Stats., sec. 67–5–24 (1961).

New York	1. Committee on medical grievances to consist of 10 members appointed by the Regents on recommendation of the commissioner plus such additional members as the Regents may determine. Nominations from medical societies. Committee shall hear all charges and Department may, on receipt of record from committee, revoke license. Notice and hearing. Judicial review. N.Y. Education L., sec. 6515 (1962).	1. Advertising a ground for revocation but not publication, distribution, and circulation by any group organized and existing as a nonprofit insurance plan pursuant to article 9–C of the State insurance law, or classified professional directories among its subscribers and members, stating group and participating physicians, osteopaths and physiotherapists, stating their addresses, telephone numbers, and special branch of medicine practiced. N.Y. Education L., sec. 6614(2) (1962).
North Dakota	....	1. New ground added: Sustaining any physical or mental disability which renders the further practice of medicine dangerous. N. Dak. Code sec. 43–17–31 (1957). 2. Performance of any dishonorable, unethical, or unprofessional conduct likely to deceive, defraud, or harm the public. N. Dak. Code, sec. 43–17–31 (1957). Formerly, negligent malpractice resulting in permanent injury to patient. 3. Use of any false or fraudulent statement in any document connected with practice of medicine. Id. 4. Knowingly performing any act which in any way assists any unlicensed person to practice medicine. Id.
Oklahoma	1. Powers of Board to suspend for periods not to exceed 5 years and to restore license; to place licensee on probation for periods of 1 to 5 years, provided that for second offense probation may be for indefinite period of time. Okla. Stats., sec. 506 (1963).	

See footnote at end of table.

Disciplinary action. Digest of legislative changes, 1957–65—**Continued**

State	Procedures	Grounds
regon..............	1. Procedure for disciplinary action spelled out: Suspend judgment; probation; suspend privilege to practice; revoke license; such other action as Board deems proper. Board may change terms of probation and "may include any reasonable condition for the purpose of protection of the public on the rehabilitation of the licentiate or both." Oreg. Rev. Stats., Sec. 677.205 (1957). [1] 2. Clerk of court making an order of commitment required to mail certified copy of court order adjudging person to be mentally ill to Board of Medical Examiners. Superintendent of State hospital to which licentiate has voluntarily applied for admission required to send certified copy of the record of the voluntary admission of licentiate to Board, and Board required to inform county clerk of suspension. Oreg. Rev. Stats., sec. 677.225 (1961).	1. New ground: Gross carelessness or manifest incapacity in the practice of medicine or surgery. Oreg. Rev. Stats. Sec. 677.190(19) (1961). [1] 2. Adjudged mentally ill or admitted on a voluntary basis to any State hospital which treats or cares for the mentally ill, except for treatment as an outpatient, for X-ray examination or therapy or for residence not exceeding 25 consecutive days. Oreg. Rev. Stats. sec. 677.225 (1961). Restoration to practice shall not take place until Board receives competent evidence that practitioner is not mentally ill and Board is satisfied, with due regard to the public interest, that practitioner's privilege to practice may be safely restored. Oreg. Rev. Stats., sec. 677.225 (1961).
ennsylvania........	....	1. Board of Medical Education and Licensure may refuse to grant or revoke license for conviction for producing, aiding, or abetting in producing a criminal abortion. Pa. Stats. Ann. Title 63, sec. 410 (1963). [1] 2. Automatic suspension on the legal commitment to an institution because of "mental incompetency from any cause." Pa. Stats. Ann. Title 63, sec. 410 (1963). 3. Board may act on proof of grossly unethical practice or of any form of pretense which might induce persons to become prey to professional exploitation or for violation of rules of Board. Pa. Stats. Ann., Title 63, sec. 410.

Rhode Island........	....	1. Refusal, revocation, or suspension for gross unprofessional conduct defined to include, inter alia, —Knowingly performing any act, which in any way aids or assists an unlicensed person to practice medicine in violation of this chapter. —Gross incompetence in the practice of his profession. R.I. Gen'l Laws, ch. 37, sec. 5–37–4 (1962).
Virginia.............	1. Remedies of applicant. May apply to circuit court for writ to show cause why certificate should be refused. Burden of proof on petitioner to establish right to be examined or to be granted a license. Virginia Code, sec. 54–318 (1966). Further appeal to Supreme Court of Appeals.	1. Knowingly and willfully commits felony or misdemeanor involving moral turpitude. —Aids or abets or has professional connections with any person known to be practicing the healing arts illegally. —Conducts his practice in a manner contrary to the standards of ethics of his branch of healing arts or in such manner as to make his practice a danger to the health and welfare of his patient or the public. Virginia Code, sec. 54–317 (1966).
	2. On receipt of information that practitioner may be subject to punitive action, Board shall appoint committee of 3 members. Practitioner to have opportunity for informal conference. Then hearing if Board feels there is basis to charges. If committee feels that information is without foundation, then it may notify practioner that he is exonerated. If true but facts do not merit formal hearing, Board *may* reprimand or censure or place practitioner on probation. Right to a hearing if practitioner desires in latter 2 cases. Virginia Code, sec. 54–318.1 (1966).	[1] 2. Board may refuse to issue a license or may suspend license of any person "adjudged insane or incompetent by a court of competent jurisdiction, either within or without this State, and such adjudication is in effect and such person has not been declared restored to sanity or competence." Virginia Code, sec. 54–317.1 (1966).
		[1] 3. Duty of practitioner of healing arts who treats professionally for alcoholism or drug addiction or for mental, emotional, or personality disorders any person licensed under this chapter to report same to Board *if he feels continuance in practice by this person, would constitute a danger to the health and welfare of his patients or the public.* Virginia Code, sec. 54–317.2 (1966). Any person making report or testifying in a judicial proceeding as a result of this report is immune from civil and criminal liability unless acting in bad faith or with malicious intent.

Disciplinary action. Digest of legislative changes, 1957–65—Continued

State	Procedures	Grounds
Wisconsin...........	1. Old provision that when a license or certificate is suspended, the suspension shall be for a definite term not to exceed 2 years. Also, old provision that a license or certificate may be voluntarily surrendered. Wis. Stats., sec. 147.20(61)(7). 2. A license or certificate may be temporarily suspended by the Board without formal proceedings and its holder placed on probation for a period not to exceed 3 months. Where he is known or the Board has cause to believe that such holder has violated provisions of sec. 147.20(1) (7 typical grounds), Board may warn and reprimand holder of license and may request State medical grievance committee to act. Board shall not have authority to suspend license for more than 2 consecutive 3-month periods. All actions under this section subject to review. Wis. States., sec. 147.20(7) (1966).	1. New section in 1959 re fee-splitting. No mention of disciplinary proceedings here, but violation of this section could be subsumed under Wis. Stats., sec. 147.20(g) "engaging in conduct unbecoming a person licensed to practice or detrimental to the best interests of the public." —separate billing required. —physician partnership permitted. —contract exceptions between hospital and medical staff with safeguards (remuneration must not be salary). Wis. Stats., sec. 147.225 (1959). 2. N.B. detailed provisions re advertising, especially in chiropractic; e.g., advertising fixed prices for variable services (M.D.'s and all); advertising professional superiority (M.D.'s and all), etc. Wis. Stats., sec. 147.25 (1957).

Wyoming...........	1. Notice and hearing. 30 days for licensee to provide written statement of nature of his defense. Decision within 30 days after hearing. Right of appeal. Order of suspension shall remain in effect during appeal unless court shall fix a bond in a sum in favor of people of Wyoming. Bond for benefit of any persons damaged by act of appellant during the appeal who might bring action: Trial before court shall be de novo and without a jury. Wyo. Stats. 37–2012 (1957).	[1] 1. Grounds rewritten in 1957. Include: —practice of medicine while having any physical or mental disability which renders the practice of medicine or surgery dangerous. —to willfully violate any privileged communication. Wyo. Stats., sec. 37–2012 (1957).

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[1] Mental illness.

Appendix 8

Legal effects of mental illness on licensure

State and citation	*Statutory provisions*
DRAFT ACT	
Alabama Code (1940).	
Arizona Rev. Stat................ 32–2042A.4 (1956), 32–1452D.3 (1956), 32–1290.1 (1956), 32–1663.5 (1956).	Certificates of physical therapists and practitioners in medicine or surgery may be revoked or suspended if the holder has been declared insane. Licenses of dentists and nurses who are mentally incompetent may be revoked or suspended.
Arkansas Stat. Ann............... 72–613(11) (1947)	Licenses of practitioners in medicine and surgery who have been adjudged insane, determined to have a mental disease or who have been voluntarily committed may be revoked or suspended.
California Code Ann. (Deering) Business and Professions. 1320.2 (1957 Supp.), BP 1671 (1957 Supp.), BP 2385 (1957 Supp.), BP 2689 (1957 Supp.), BP 2763 (1957 Supp.), BP 3108 (1957 Supp.), BP 8656 (1957 Supp.), BP 4355 (1957 Supp.), BP 2618 (1957 Supp.).	Licenses of clinical laboratory technicians, dentists, physicians and surgeons, licensed physical therapists, nurses, optometrists, pest control operators, pharmacists, registered physical therapists are suspended or revoked upon adjudication of insanity or incompetency.
Colorado Rev. Stat. Ann.......... 42–1–10 (1953)	Licenses of dentists suffering from mental disability will be suspended.
Connecticut Gen. Stat............ 20–59(h) (1958)	Certificates of chiropodists may be revoked, suspended or annulled upon mental illness or deficiency of practitioner.
Delaware Code Ann.	
Florida Stat..................... 458.12(e) (1957), 465.101(1)(d)3(1957), 464.21(2)(a)(1957).	Insane persons are disqualified to practice medicine until their sanity is restored. The license of an insane pharmacist may be revoked or suspended by reason of insanity. The Board may deny or refuse to renew the license of a nurse who has been adjudged incompetent.
Georgia Code Ann............... 84–916 (15), (20) (1958 Supp.)	Licenses of medical practitioners (apparently this includes physicians and surgeons) are automatically suspended if holder sustains any mental disability.

Legal effects of mental illness on licensure—Continued

State and citation	*Statutory provisions*
Idaho Code . . . . 54–1810(k) (1947), 54–1422(a) (5) (1947)	Licenses held in medicine and surgery and of nurses are revoked or suspended when holder has been declared insane or mentally incompetent.
Illinois Ann. Stat. (Smith-Hurd) . . . 91–81 (1956), 91–62 (1956), 91–35.46 (1956), 91–55.13 (1956), 91–22.15 (1956), 91–16a (1958 Supp.), 111½–35.2 (1956)	The entry of a decree of insanity or mental illness operates as a suspension of the licenses or certificate of registration of chiropodists, dentists, nurses, pharmacists, physical therapists, those licensed in medicine, surgery, human ailments, midwifery and public health nurses.
Indiana Stat. Ann. (Burns) . . . . 63–518(2) (1951 Repl.)	Licenses of dentists are suspended or revoked upon adjudication of unsound mind.
Kansas Gen. Stat. Ann. (1949)	
Kentucky Rev. Stat. Ann. (Baldwin). 314–250 (1955), 314–390 (1955), 311.595(1)(g) (1955)	Licenses of a registered or practical nurse may be denied, revoked or suspended if person is "mentally incompetent." Licenses of physicians, osteopaths and chiropodists may be revoked or suspended if holder has developed such mental disability that continued practice is dangerous to patients or to the public.
Louisiana Rev. Stat . . . . 37:930(5) (1950)	Licenses of nurses may be suspended or revoked if holder is mentally incompetent.
Maine Rev. State . . . . 67–A.12 (1957 Supp.)	The license of a physical therapist who has been declared insane by a court and not thereafter declared sane may be suspended.
Maryland Code Ann.	
Massachusetts Ann. Laws 112–61 (1957)	Any certificate, registration, license or authority issued by the Boards of medicine, pharmacy, veterinary medicine, and the Board of Dental Examiners may be revoked or suspended if it appears to the Board that the holder of such certificate, registration, license, etc. is insane.
Michigan Comp. Laws . . . . 338.362 (1956 Supp.)	Certificates or licenses of nurses may be revoked, denied or suspended upon evidence that the nurse is not free from a disqualifying mental disability.
Minnesota Stat. (1957).	
Mississippi Code Ann. (1942).	
Missouri Rev. Stat. (1957).	
Montana Rev. Code Ann 66–1240 (5) (1953)	Licenses of nurses may be denied, revoked or suspended upon proof of mental incompetence.
Nebraska Rev. Stat. (1952).	

Legal effects of mental illness on licensure—Continued

State and citation	*Statutory provisions*
Nevada Rev. Stat. 630.030.15 (1957), 630.300 (1957), 632.220.5 (1957), 632.320.5 (1957), 637.150.1 (1957), 640.160.7 (1957), 636.296.6 (1957)	The practice of medicine, surgery and obstetrics by one who is adjudicated insane constitutes unprofessional conduct, and licenses are refused, suspended or revoked if holder is guilty of unprofessional conduct. Licenses of professional and practical nurses may be revoked, suspended or denied for mental incompetence. Licenses of ophthalmic dispensers and physical therapists may be refused, suspended or revoked upon holder being adjudicated insane and not thereafter having been lawfully declared sane. Licenses of optometrists may be suspended or revoked if licensee is afflicted with any mental disorder or disturbance seriously impairing his competency as an optometrist.
New Hampshire Rev. Stat. Ann. 329:17 (1957) Supp.), 329:17–a (1957 Supp.), 328:8 (1955), 330–A:14(d) (1957 Supp.)	Licenses for practice of medicine may be revoked or suspended if holder is insane, or suspended if the licensee is involuntarily committed to the State Hospital in order that his sanity may be determined. Registration of physical therapists may be revoked or suspended if registrant is insane. Certificates of psychologists may be suspended or revoked if holder is or has been committed to an institution for the mentally ill.
New Jersey Stat. Ann. (1940).	
New Mexico Stat. Ann. 67–6–29(5) (1953), 67–4–10 (b), (4) (1953), 67–10–12(2) (1953)	Licenses of nurses, dentists and dental hygienists and physical therapists may be denied, suspended or revoked upon adjudication of insanity or mental incompetence.
New York Education Law 6514.2(c) (1950), 6911.1(f) (1950)	The license or registration of a practitioner of medicine, osteopathy or physiotherapy may be revoked, suspended or annulled if he becomes insane. The license and registration of any person licensed to practice nursing may be revoked or suspended upon proof that such licensee has become mentally incompetent.
North Carolina Gen. Stat. Ann. 90–14 (1958 Repl.), 90–158.19 (6) (1958 Repl.)	Licenses of persons practicing medicine or surgery and registered nurses may be revoked or suspended if licensee is mentally incompetent.
North Dakota Rev. Code 43–0615.3 (1943), 43–1420.3 (1943), 43–0819.2 (1943)	Licenses of chiropractors and osteopaths maybe refused or revoked for mental aberrations. Certificate of registration of any dentist may be revoked or suspended if holder has been adjudged insane.
Ohio Rev. Code Ann. (Baldwin) 4723.28 (1958)	Certificate or license of registered or practical nurses may be denied, suspended or revoked upon proof that person is mentally incompetent.

Legal effects of mental illness on licensure—Continued

State and citation	*Statutory provisions*
Oklahoma Stat.................. 59–148(1) (1957 Supp.), 59–167 (1957 Supp.), 59–278(k) (1957 Supp.), 59–567.8(5) (1957 Supp.), 59–637(g) (1957 Supp.), 59–880(e) (1957 Supp.), 59–516 (1957 Supp.)	Chiropodists' licenses may be revoked in case of a mental weakness which incapacitates the licensee; the original or renewal license, or both, of any chiropractor may be suspended who becomes incompetent to practice because of insanity; the Board may revoke or suspend a dentist's license if he has been proven mentally unsound; the Board may deny, revoke or suspend any registered or practical nurse who is judicially determined to be mentally incompetent; the Board may refuse to issue or may suspend or revoke any license for an osteopath who has been adjudicated insane and committed to an institution for the insane; the Board shall refuse to grant registration or renewal of registration to a physical therapist is he has been declared mentally incompetent by a court and has not theretofore been lawfully declared sane; the license or certificate of any physician or surgeon may be suspended when such physician or surgeon becomes incompetent to practice medicine because of insanity.
Oregon Rev. Stat................ 684.100(1)(e) (1957), 681.140 (1)(i) (1957), 679.165 (1957), 677.225(1) (a), (b) (1957)	Licenses of chiropractors may be suspended or revoked on the grounds of commitment to a mental institution. The license of an osteopath may be revoked for mental illness as evidenced by an adjudication or by voluntary commitment for treatment of mental illnesses or as determined by an examination conducted by by three impartial psychiatrists. The entry of a decree by any court establishing the mental disease of any dentist operates as a suspension of his license. The board shall suspend a person's license to practice medicine and surgery if he is adjudged to be mentally ill or admitted voluntarily or committed to any state hospital.
Pennsylvania Stat. Ann. (Purdon).. 63–4.9(d) (1958 Supp.)	The registration to practice medicine and surgery shall be automatically suspended upon the legal commitment to an institution of a licensed physician because of mental incompetency from any cause.
Rhode Island Gen. Laws.......... 5–34–28(5) (1956), 5–34–3. (1956)	Licenses to practice nursing may be denied, revoked or suspended upon proof of mental incompetence. If the nurse is hospitalized for mental illness, the board may suspend or refuse to renew the license.

Legal effects of mental illness on licensure—Continued

State and citation	*Statutory provisions*
South Carolina Code of Laws…… 56–572(3) (c), (d) (1952), 56–1346.7 (1958 Supp.)	The license of any dentist or dental hygienist may be suspended or revoked for insanity or adjudication of insanity Licenses of physical therapists are suspended or revoked upon declaration of mental incompetence.
South Dakota Code (1939).	
Tennessee Code Ann…………… 63–723.e (1955)	Licenses of nurses who are mentally incompetent may be denied, revoked or suspended.
Texas Stat. (Vernon)…………… 4563(e) (1948), 4542a.12(e) (1958 Supp.), 4549(a) (1948), 4528c–10 (1958 Supp.), 6687b–30 (1948)	Licenses of optometrists, pharmacists, dentists, licensed vocational nurses if holder has become insane or had been ajdudged of unsound mind.
Utah Code Ann………………… 58–8–11(a) (1953)	Licenses of dental hygienists may be revoked for mental incompetency to practice the profession.
Vermont Stat. Ann. (1959).	
Virginia Code…………………… 54–317.1(2) (1959 Repl.)	Licenses of persons practicing medicine, osteopathy, chiropractic, naturopathy, chiropody, or physical therapy may be denied or suspended if holder has been adjudged insane or incompetent by a court and not declared restored.
Washington Rev. Code………… 18.72.030(14) (1957), 18.74.080(5) (1957)	Members of the medical profession who are declared mentally incompetent are guilty of unprofessional conduct for which their licenses may be revoked or suspended. Licenses of physical therapists are refused or revoked if person has been declared insane and not thereafter declared sane.
West Virginia Code Ann………… 2926(5) (1955), 2929(11)(5) (1959 Supp.)	Licenses of registered or practical nurses are revoked or suspended if person is mentally incompetent.

NOTE.—Excerpted from Lindman and McIntyre, The Mentally Disabled and the Law, Report of the American Bar Foundation on the Rights of the Mentally Ill, University of Chicago Press, IX–C: "Engagement in Occupations, 1961."

Appendix 9

Osteopathic licensure

	Composition of licensing agency and examining board where no separate examining board exists				Composition of separate examining board			Type of license granted [2]	Type of examinations given [3]	Length of interneship required (years)	Education: graduation from approved school
	M.D. only	Composite [1]	D.O. only	Nonprofessional	M.D. only	Composite [1]	D.O. only				
Alabama	------------	------------	------------	X [4] 46, § 257	X 46, § 258	------------	------------	1, 46, § 259	Same, 46, § 259-60.	------------	X 46, § 259
Alaska	------------	------------	[12] X	------------	------------	------------	------------	[12] 3, 4	Special[12]	1, 08.64.205	X 08.64.205
Arizona	------------	------------	[13] X 32-1801	------------	------------	------------	------------	[4] 3, 32-1852	Special, 32-1823	[4] 32-1856	X 32-1822
Arkansas	------------	------------	X 72-901	------------	------------	------------	------------	[5] 3, 4, 72-906.	Special, 72-903, 72-906.	------------	X 72-903
California	X [10] 2004	------------	------------	------------	------------	------------	------------	1, 3600	Same, 3600	1, § 2192	X 2192
Colorado	------------	X 91-1-3	------------	------------	------------	------------	------------	1, 91-1-6	Same, 91-1-13.	1, 91-1-9	X 91-1-7
Connecticut	------------	------------	------------	X 20-2	------------	------------	X 20-15	[5] 3, 4, 20-21	Special, 20-18	------------	X 20-17
Delaware	------------	------------	------------	X 24, § 1754	------------	X 24 § 1751	------------	1, 24, § 1756	Special, 24, §§ 1751, 1752.	1, 24, § 1751	X 24, § 1751
District of Columbia	------------	------------	------------	X 2-103	------------	X 2-109	------------	1, 2-109	Same, 2-109	1, 2-122	X 2-122
Florida	------------	------------	X 459.05	------------	------------	------------	------------	1, 459.09, 459.10, 459.13,	Special, 459.09.	1, 459.10	X 459.08
Georgia	------------	------------	X 84-1202	------------	------------	------------	------------	[6] 2, 84-1209	Special, 84-1207	1, 84-1207	X 84-1207

See footnotes at end of table.

Osteopathic licensure—Continued

State	Composition of licensing agency and examining board where no separate examining board exists				Composition of separate examining board			Type of license granted [2]	Type of examinations given [3]	Length of interneship required (years)	Education: graduation from approved school
	M.D. only	Composite [1]	D.O. only	Nonprofessional	M.D. only	Composite [1]	D.O. only				
Hawaii	-----------	-----------	-----------	X 14A-14	-----------	-----------	X 70-4	[4] 2, 3, 70-8	Special, 70-6, 70-7, 70-8.	[4] 70-7	X 70-6
Idaho	-----------	-----------	-----------	X 67-2901-03	-----------	-----------	X 67-2906	[7] 2, 3, 4	Special, 54-1601, 67-2906.	-----------	X 54-1601
Illinois	-----------	-----------	-----------	X 91, § 16b-1	-----------	[12] X	-----------	[13] 1, [4] 91, § 5	Same, 91, § 8.	1, 91, § 5	X 91, § 5
Indiana	-----------	X 63-1305	-----------	-----------	-----------	-----------	-----------	1, 63-1316	Same [12]	-----------	X 63-1302
Iowa	-----------	-----------	-----------	X 147.2, 147.6	-----------	-----------	X 147.12-147.15	[4] 2, 3, 4, 150.4-150.8	Special, 150.4, 150.5.	[4] 1505	X 150.4
Kansas	-----------	X 65-2813	-----------	-----------	-----------	-----------	X 65-2830	1, 65-2873	Same, 65-2873.	(8)	X 65-2873
Kentucky	-----------	X 211.040	-----------	-----------	-----------	-----------	-----------	1, [10] 311.550	Both, [7] 311.570.	1, 311.570	X 311.570
Louisiana	-----------	X 37-6, 37-3	-----------	-----------	-----------	-----------	X 37:1112-37:1116	3, 4, 37.1111-37.1117	Special, 37:1116.	-----------	X 37.1117
Maine	-----------	-----------	X 71, § 1	-----------	-----------	-----------	-----------	1, 71, §§ 4-5	Special, 71, § 5.	(8)	X 71, § 4
Maryland	-----------	-----------	X 43, § 467	-----------	-----------	-----------	-----------	3, 4, 43, § 477	Special, 43, § 474.	-----------	X 43, § 474

Massachusetts	------------	X 112, § 2	------------	------------	------------	------------	------------	1, 112 § 2	Same, 112, § 2.	------------	X 112, § 2
Michigan	------------	------------	X 14.571	------------	------------	------------	------------	[5] 2, 14.574	Special, 14.572.	------------	X 14.572
Minnesota	------------	X 147.01	------------	------------	------------	------------	------------	1, 147.01–147.031	Same, 147.02.	1, 147.02	X 147.02
Mississippi	X 7024	------------	------------	------------	------------	------------	------------	2, 8891	Special, 8891.	------------	X 8891
Missouri	------------	X 334.120	------------	------------	------------	------------	------------	1, 334.040	Same, 334.040	------------	X 334.031
Montana	------------	------------	X 66–1401	------------	------------	------------	------------	[5] 3, 4, 66–1406	Special, 66–1405.	------------	X 66–1403
Nebraska	------------	------------	------------	X 71–102	------------	------------	X 71–111—71–114	2, 71, 1, 141	Special, 71–1,139.	------------	X 71–1, 139
Nevada	------------	------------	X 633:020	------------	------------	------------	------------	1, 633.140	Special, 633.010.	1, 633.010	X 633.010
New Hampshire	------------	[14] X 329:3	------------	------------	------------	------------	------------	1, 329:1	Same, 329:10, 329:11.	1, 329:12	X 329:12
New Jersey	------------	X 45:9–1	------------	------------	------------	------------	------------	[16] 1, 3, 45:9–14:3	Same [12]------	1, 45:9–8	X 45:9–8
New Mexico	------------	------------	X 67–8–4	------------	------------	------------	------------	1, 67–8–12	Special, 67–8–8.	------------	X 67–8–5
New York	------------	------------	------------	X	------------	X 6503	------------	1, [6] 6512	Same, 6506.	------------	X 6506
North Carolina	------------	------------	X 90–130	------------	------------	------------	------------	[17] 3, 4, 90–129	Special, 90–131.	------------	X 90–131
North Dakota	------------	------------	X 43–14–04	------------	------------	------------	------------	2, 3, 43–14–01	Special, 43–14–12.	------------	X 43–14–09
Ohio	------------	X 4731.01	------------	------------	------------	------------	X 4731.13	1, 4731.14	Both, 4731.13.	------------	X 4731.08

See footnotes at end of table.

Osteopathic licensure—Continued

State	Composition of licensing agency and examining board where no separate examining board exists				Composition of separate examining board			Type of license granted [2]	Type of examinations given [3]	Length of interneship required (years)	Education: graduation from approved school
	M.D. only	Composite [1]	D.O. only	Nonprofessional	M.D. only	Composite [1]	D.O. only				
Oklahoma	----------	----------	X 59 § 625	----------	----------	----------	----------	[9] 1, 3, 59, § 633	Special, 59, § 632.	[9] 59 § 630	X 59, § 62 [9]
Oregon	----------	X 681. 160	----------	----------	----------	----------	----------	1, 681. 020, . 040, . 060	Same,[12] 681.060.	1, 681.040	X 681. 040
Pennsylvania	----------	----------	X 63–2602	----------	----------	----------	----------	1, 63 § 266	Special, 63–262.	1, 63–262	X 63–262
Rhode Island	----------	----------	----------	X 5–36–1	----------	----------	X 5–36–2	[4] 1, 3, 5–36–4	Both, 5–36–3.	[4] 5–36–2	X 5–36–3
South Carolina	----------	----------	X 56–1103	----------	----------	----------	----------	3, 4, 56–1101	Special, 56–1110, 56–1112.	----------	X 56–1109
South Dakota	----------	----------	X 27. 0401	----------	----------	----------	----------	2, 3, 27. 0405	Special, 27.0403.	1, 27. 0403	X 27. 0403
Tennessee	----------	----------	----------	X 63–901	----------	----------	X63–901	1, 63–906	Special, 63–906.	----------	X 63–904
Texas	----------	X 4495	----------	----------	----------	----------	----------	[12] 1	Same, 4501.	----------	X Art. 4501
Utah	----------	----------	----------	X 58–1–1	----------	----------	X 58–1–5	[4] 1, 3, 58–12–6—7	Special, 58–1–7	[4] 58–12–7	X 58–12–2
Vermont	----------	----------	X 27 § 1791	----------	----------	----------	----------	1, 27 § 1835	Special, 27, § 1831	1, 27 § 1831	X 27, § 1831

Virginia	------------	X 58-282	------------	------------	------------	------------	------------	[4] 1, 3, 4, 54-273	Both, 54-298, 58-299.	(8)	X 54-306
Washington	------------	------------	------------	X 43.24.020	------------	------------	X 43.24.060	1, 18.57.020	Special, 18.57.080	1, 18.57.020	X 18.57.030
West Virginia	------------	------------	X 30-14-1—30-14-3.	------------	------------	------------	------------	1, 30-14-9	Special, 30-14-5.	(8)	X 30-14-2
Wisconsin	------------	X 147. 13	------------	------------	------------	------------	------------	1, 147. 17	Same, 147. 16.	1, 147. 17	X 147. 15
Wyoming	------------	X 33-328	------------	------------	------------	------------	------------	1, 33-333	Same, 33-333.	------------	X 33:333

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[1] The States listed under this heading either permit or require osteopaths to be on the board.

[2] The entries in this column indicate the scope of permissible practice of osteopathy in the United States. Numeral 1 indicates that licensed osteopaths have an unlimited license. The numeral 2 indicates osteopathic practice is limited to that which is taught in osteopathic schools. The numeral 3 indicates licensed osteopaths may not perform major surgery and the numeral 4 indicates osteopaths may not administer or prescribe drugs.

[3] The entries in this column indicate whether osteopathic candidates for licensure must take the same examination given to graduates of medical schools or whether osteopathic candidates are given a special examination.

[4] License to peform major surgery will be granted only upon completion of postgraduate education: Arizona, 2 years in hospital training; Hawaii, 1 year in hospital training and 1 year as an assistant to a licensed surgeon; Iowa, either 2 years postgraduate education or 9 months postgraduate education and 1 year as a surgical assistant; Rhode Island, 1 year of internship; Utah, 1 year as surgical intern.

[5] License to perform major surgery may be granted to an osteopath by the medical examining board.

[6] Only certain narcotic drugs may be used for alleviation of pain in Georgia.

[7] *State* v. *Sawyer*, 36 Idaho 814, 214 Pac. 222 (1923).

[8] Length of internship not specified by statute.

[9] License to perform major surgery requires 2 years practice and 2 years of graduate education or 1 year graduate education and 1 year as a surgical assistant.

[10] Osteopaths electing to use the suffix "M.D." are governed by the Board of Medical Examiners while those retaining the use of the suffix "D.O." are governed by the Board of Osteopathic Examiners. Cal. Bus. & Prof. Code § 2004. Osteopaths are no longer licensed in California. Cal. Bus. & Prof. Code § 3600.

[11] 1 member is a dentist.

[12] Holman, Osteopathy and the Law, 195 No. 10, J. Am. Med. Association 283 (Mar. 7, 1966).

[13] The Arizona board consists of 4 osteopaths and 1 public member.

[14] No osteopaths are on the New Hampshire board, Holman supra, note 9, although the statutory wording permits an osteopath to serve on the board.

[15] Although the statutory language is amibuous the courts have decided osteopaths may obtain an unlimited license. *Chicago College of Osteopathy* v. *Puffer*, 3 Ill. App. 2d 69, 120 N.E. 2d 672 (1954).

[16] Osteopaths have not been separately licensed in New Jersey since 1941.

[17] *State* v. *Baker*, 229 N.C. 73, 48 S.E. 2d 61 (1948).

Chapter II

Licensure of Other Medical Personnel

Edward H. Forgotson
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Licensure of Other Medical Personnel

A. Introduction

Unlike medical licensure laws, which were originally necessary to combat widespread quackery, commercial exploitation, and deception of the public,[1] State licensure statutes for allied and auxiliary health personnel were not enacted to correct such abuses of independent, entrepreneurial practice. Instead, the latter statutes have usually been "friendly" regulations enacted with the cooperation of the professions and occupations themselves, and designed to protect both the regulated personnel and the public from unqualified and unethical practitioners.[2] The forms of licensure, however, are generally similar to medical practice acts, except that, in some States for some personnel, licensure may be permissive rather than mandatory.[3] Accordingly, the statutes define the practice of the various professions and occupations, and prescribe the personal and educational qualifications required for such practice.

As previously noted,[4] the most significant contemporary issues regarding licensure of allied and auxiliary personnel concern the effect of licensure provisions upon the distribution of tasks and duties among each professional and occupational category. For physicians, with unlimited licenses to perform all functions, the critical questions are what functions they may delegate, and to what personnel and under what conditions such delegations may be made.[5] For allied and auxiliary personnel, the problems are more numerous and complex. First, because their licenses are limited to a particular segment of health service, it is necessary to determine those functions which they may not legally perform under ordinary circumstances.[6] These determinations require interpretation of the scope of permissible practice as defined by the relevant licensure statute, and the scope of exclusive practice as defined by licensure statutes for other personnel higher in the medical hierarchy. Thus, for example, statutory definitions of medical practice and exceptions thereto [7] may affect the scope of practice of all other health personnel; and definitions of professional nursing may affect the scope of other occupations such as practical nursing.

The answer to these problems must first be sought in the statutory definitions of those professions. Even though present statutes may provide a legal definition of the present permissible scope of activities of these professions, they are not designed to provide an optimal allocation of responsibilities among the allied or auxiliary health professions and occupations. They merely state that if a person meets a specified set of qualifications, he may perform any of a specified range of functions. A design for optimal allocation must be developed by viewing the health service professions and occupations as a matrix in which duties and responsibilities should be distributed on the basis of a number of factors. One of these factors, present legal definitions, is not necessarily responsive to present and projected requirements for delivery of medical care and, therefore, should not be overly stressed. We should not restrict our thinking to the present qualifications of the various members of the matrix; rather we should examine the entire manpower component of the health care delivery system with the objective of achieving the most efficient and flexible associations possible. This requires that many health functions and tasks be delegated to others.[8] For example, the physician who has had many years of training and experience in diagnosis should not be legally required to perform routine and mechanical tasks not requiring the skill and judgment which are the products of completing undergraduate and graduate medical education. His forte is the ability to make difficult medical decisions based upon years of study and experience; having made such decisions, he should have freedom to delegate to others the task of performing, under his supervision and direction, certain routine diagnostic and therapeutic procedures. The realization that, in difficulty of performance, health care services present a spectrum ranging from the most simple housekeeping duties to the most difficult and sophisticated diagnostic and therapeutic procedures should make it apparent that these services ought to be performed by personnel of varying levels of educational and clinical experience.

Functions within the scope of licensed practice for an allied or auxiliary occupation may be either "independent" of or "dependent" upon practitioners' receiving orders, direction, or supervision from physicians or other higher ranking personnel. Obviously, many variables are involved in determining whether a given function is dependent, and if so, the nature and degree of supervision required for its performance.[9] The same complexity characterizes another problem related to the scope of allied and auxiliary licenses—the delegability of functions. As for physicians, functions authorized for other categories of personnel must be divided between those which are theirs exclusively,[10] and those which they in turn may delegate to other personnel.[11]

Another set of problems arises from the fact that not all allied and auxiliary personnel are regulated in the several States by mandatory or permissive licensure. Health workers in this category include clinical laboratory personnel, medical and psychiatric social workers, midwives, occupational therapists, opticians, psychologists, physicians' assistants, nurses' aides, and numerous other therapists, aides, and assistants. Where statutes provide for permissive rather than mandatory licensure, practitioners of such occupations as professional nursing, practical nursing, or physical therapy may be unlicensed but said practitioners may not use the professional title. For unlicensed personnel, scope-of-practice issues are further complicated by the lack of any statutory specifications of either required qualifications or authorized functions.[12]

In general, scope-of-practice issues are the most clouded areas in the legal regulation of health manpower, since they have not been adequately resolved by the licensure statutes or related court decisions. This conclusion is documented in the following review of individual categories of personnel licensure, and suggestions are made for improvements in the formulation, interpretation, and enforcement of the various statutes. It should be recognized, however, that there is a definite advantage in the existing pattern of these statutes which will be discussed infra.

B. Allied and Auxiliary Health Personnel

1. Professional Nurses

a. Licensure—Although all U.S. jurisdictions license professional nurses, licensure is permissive rather than mandatory in 20 States.[13] Permissive licensure statutes merely prohibit unlicensed nurses from using the title, "R.N.," or otherwise representing that they are licensed. The modern legislative trend has been toward mandatory licensure,[14] which bars unlicensed persons from nursing practice as defined by the licensure statutes. Among the obvious advantages of mandatory licensure is that, by assuring minimum personnel qualifications, it facilitates resolution of scope-of-practice and delegation problems.

Objections to mandatory licensure come chiefly from employers of nurses who fear the loss of practicing unlicensed nurses would create serious personnel problems.[15] These fears, even if factually justified, are readily removed by the common statutory device of a "grandfather" clause exempting present practitioners. Other objections proceed from dissatisfaction with the ambiguity of statutory definitions of the practice of nursing,[16] which have critical importance in mandatory legislation. These objections, however, argue for improved definitions, not against mandatory licensure.

b. Definitions—Nursing practice acts provide definitions of a variety of basic terms. In some States, especially those which permissively license professional nurses, the term registered nurse or registered professional nurse is defined according to required qualifications and authorized functions.[17] A few other licensure statutes contain definitions of "the practice of nursing," which may include both professional and practical nursing; [18] but in most States the "practice of professional nursing" is separately defined. Despite this diversity of basic terminology, the legislative definitions are remarkably similar in form and content. The following model definition is most commonly used, and contains most of the elements found in other definitions:

> The term "practice of professional nursing" means the performance, for compensation, of any acts in the observation, care and counsel of the ill, injured or infirm or in the maintenance of health or prevention of illness of others, or in the supervision and teaching of other personnel, or the administration of medications and treatments as prescribed by a licensed physician or a licensed dentist; requiring substantial specialized judgment and skill and based on knowledge and application of the principles of biological, physical and social science. The foregoing shall not be deemed to include acts of diagnosis or prescription of therapeutic or corrective measures.[19]

Other frequently employed definitional elements are requirements of "skill in the observation of symptoms and reactions and the accurate recording of the facts," [20] and "understanding of cause and effect in order to safeguard the life and health of a patient and others." [21]

Even in those States where licensure is mandatory, the nursing practice acts are replete with exemptions from licensure requirements. Throughout the 51 jurisdictions there are at least 13 different exceptions to the statutory definitions. Gratuitous nursing services are exempted in 46 jurisdictions; 24 States exempt care provided by domestic servants; and nursing according to religious tenets is exempted from licensure by 23 States.[22] Other exemptions include those for emergency care, Federal employees, student nurses in training, recent graduates, nurses licensed in other States pending passing the licensure examination, nurses licensed in neighboring States with overlapping practices, nursing in special facilities, services performed by auxiliary personnel, nursing under physicians' orders without assuming to practice,[23] and, in one State, nursing performed in a licensed facility.[24]

c. Accreditation of Schools—All nursing practice acts establish a board statutes, and in most States this agency licenses both professional and practical nurses.[25] In all but three States the licensing board also approves schools of nursing,[26] thus coordinating the administration of the licensure process for the entire field of nursing.

Since the scope of professional nursing largely depends upon delegated functions,[27] and delegability in turn depends upon the quantity and quality of nurses' educational preparation, perhaps the most important provisions of the licensure statutes are those relating to approval of professional nursing schools. However, few nursing practice acts specify standards for schools producing licensure candidates, other than requiring a certain duration of training or the inclusion of specific courses.[28] Fifteen jurisdictions require by statute that a nursing school have an affiliation or relationship with a hospital.[29] Statutory requirements for adequate financing, physical plant, library facilities, and qualified faculty exist in a few States.[30] But the statutes usually require a survey or site visit of a nursing school,[31] so that, in fact, these essential educational resources may be examined by the boards.

Approval of schools is generally a matter for individual State licensure agencies. The statutes of two States, however, partially base approval upon the evaluations of professional nursing education programs by national accrediting agencies.[32] Both the National League for Nursing and the American Association of Junior Colleges accredit nursing programs, but they do so only on a voluntary basis.[33]

Variations in the quality of nursing schools are well known. Despite continuing efforts to improve them, many nursing education programs are substandard.[34] A number of hospital training programs have been terminated, and a considerable proportion of those remaining are not approved by the National League for Nursing. On the other hand, much attention is being given to revisions of nursing practice and associated education. The American Nurses' Association has recommended a redefinition of nursing roles with stringent educational requirements for each. The professional nurse envisioned by the Association would be prepared in baccalaureate and higher degree programs; technical nurses would be prepared in 2-year junior and community colleges; and these two groups would be assisted by nurses' aides, nursing assistants, orderlies, and other personnel with on-the-job training.[35] Redefinition of nursing roles and of the educational requirements for them represents a recognition of the dynamic changes that are occurring in nursing functions and the need for improved preparation. As the concept is transformed into reality, it is possible that the professional nurse will be less a nurse and more a medical administrator-coordinator and a services-engineering technician all rolled into one. Such a "patient care supervisor" might be a woman or a man. Development of a new title and new roles for the professional nurse, as was recommended by the National Task Force on Health Manpower,[36] could make male nurses more available than at present to help augment the supply of nursing personnel.

Although national accreditation is not generally used in the approval of nursing schools for licensure purposes, in two other significant respects nursing licensure has achieved nationalization. Most important is the use of a single standardized licensure examination for professional and practical nurses which is administered in all States to all candidates.[37] This nationally uniform examination greatly facilitates interstate recognition of licenses, and licensure barriers to the movement of nurses from State to State have been virtually eliminated.[38] The statutes of all but 15 States specifically provide for endorsement of licenses of other States, although in some States an applicant must also have satisfied educational requirements equivalent to those of the State in which licensure recognition is sought. In the 15 States without statutory provisions concerning endorsement, each application for licensure by a nurse already licensed in another State is a matter for administrative discretion.

2. Nurse-Midwives

The professional nurse-midwife is an excellent example of the manpower potential that can be realized by expanding and revising education and training of professional nurses. Although nurse-midwives are licensed only in New Mexico, the eastern counties of Kentucky, and New York City, this occupational specialty deserves wider consideration as an expanded use of professional nurses. The nurse-midwife is a registered professional nurse with additional academic and clinical training in maternal and infant care. The American College of Nurse-Midwifery defines the functions of the nurse-midwife as "prenatal, intrapartum, and postpartum care geared to the needs of the individual mother and the family." [39] Throughout pregnancy the nurse-midwife provides physical and emotional support to the mother and after delivery provides instruction on infant care. Qualified nurse-midwives could prove invaluable in rural areas where physicians are not locally available, and in urban areas to free obstetricians for complicated and difficult cases.

A nurse-midwife is not an independent practitioner, but works within medically directed health services—a hospital, a public health program, a maternity nursing service, a nursing school, or a family planning clinic. The New York City Health Code requires that a licensed nurse-midwife be associated with and "function exclusively as part of a staff of a maternity and newborn service or maternity clinic approved by the Department (of Health), and will carry on her activities under the continuous supervision of a qualified obstetrician * * *." [40] The relevant regulations in New Mexico limit nurse-midwives to the care of "only presumably normal patients who have received adequate prenatal examination by a licensed physician with a knowledge of obstetrics * * *." [41] Under such regulations the nurse-midwife must engage in self-policing by exercising judgment as to when a patient under her care is no longer presumably normal and should again be seen by a physician.

There are seven educational programs in the United States and Puerto Rico leading to a certificate in nurse-midwifery, and five programs leading to a master's degree and a certificate in nurse-midwifery.[42] The few statutes and regulations providing licensure for nurse-midwives require the applicant to have graduated from a training program recognized by the American College of Nurse-Midwifery. The standards set by this national accrediting agency have been appropriately high to qualify nurse-midwives for their functions.

In many States the medical practice acts restrict the practice of midwifery to physicians. These provisions were enacted to eliminate untrained "granny midwives," a few of whom remain in practice, particularly in rural areas and among poor families.

In States in which the Medical Practice Act does not specifically exclude midwifery in the definition of the practice of medicine, no barrier exists to the use of professional nurses as nurse-midwives without specific licensure provisions, since it could be permitted under the nursing practice acts themselves. In other States exceptions to the medical practice acts permitting nurse midwifery should be considered along with appropriate provisions to license nurse-midwives. It must be pointed out that revision of licensure laws alone will not insure full use of nurse-midwives because questions governing the specifics of their use have not yet been resolved by the medical profession. The New York City statute [43] and the New Mexico [44] regulations could serve as a prototype for developing a model statute for licensure of nurse-midwives.

3. Practical Nurses

a. Definitions, Scope and Effect—Practical nurses are licensed in all jurisdictions,[45] but licensure is mandatory in nine States.[46] Practical Nursing is usually defined in the statutes even more loosely than Professional Nursing. The following frequently used "model" definition is illustrative: [47]

> The term "practice of practical nursing" means the performance for compensation of selected acts in the care or prevention of illness, and in the care of the ill, injured, or infirm, under the direction of a licensed professional nurse or a licensed physician or a licensed dentist; and not requiring the substantial skill, judgment, and knowledge required in professional nursing.

Statutory definitions of practical nursing are important because the functions of practical nurses must be differentiated from both medical functions and professional nursing functions. Moreover, medical as well as legal experience with practical nursing has been relatively brief, and, therefore, custom and usage are not so well established as in professional nursing.

Although most statutes indicate that practical nursing does not require the skill, judgment, knowledge, or education necessary for professional nursing,[48] in other respects the definitions are neither so uniform nor so clear. Some statutes seem to provide for independent functions in the care of subacute, convalescent and chronic patients [49] or the care of a convalescent, a chronically ill or an aged or infirm patient,[50] in addition to dependent functions performed under the direction or supervision of physicians or professional nurses.[51] On the other hand, many definitions seem to limit practical nurses to dependent functions,[52] and still others do not furnish any guidance on this question. Where dependent functions are authorized, the requisite supervision may usually be provided by either a physician or a professional nurse, but a few statutes seem to restrict such delegations to medical directions.[53]

b. Accreditation and Examination—As previously noted,[54] in all but seven States the licensing agency for practical nurses is the same as that for professional nurses. For practical as well as professional nurses, licensure examinations are nationally standardized,[55] so that the most important state functions relate to the approval of schools for practical nurses. Although the National League for Nursing accredits programs of practical nursing education if they meet certain conditions,[56] the State boards approve educational programs which produce licensure candidates.[57] As is the case for professional nursing schools, the most common statutory requirements for approval concern curriculum, either its duration or its content,[58] and a survey or site visit is usually necessary.[59] Only seven States require by statute that an educational program for practical nurses maintain a hospital relationship,[60] although in fact one-fifth of the programs have such a relationship.

In 1964 there were 913 State-approved programs of practical nursing education in the United States, of which about half were administratively controlled by a vocational school, about 20 percent were hospital-controlled, and 14 percent were under collegiate auspices.[61] The quality of education provided in these schools varies considerably, as evidenced by differences in length of training and in courses required, but extensive work is in progress to revise and improve them. The American Nurses' Association has proposed the preparation of technical nurses in 2-year associate degree programs in junior colleges, and the Task Force on Health Manpower of the National Commission on Community Health Services also urged that practical nurses be trained in 2-year colleges with appropriate clinical experience in affiliated hospitals.[62] The latter proposal recognizes the benefits to be obtained from preparing members of the health team in multidisciplinary health centers.

4. Physical Therapists

As of 1965, there were specific statutory provisions relating to the practice of physical therapy in 42 States and the District of Columbia.[63] Mandatory legislation, which requires that a person be licensed to practice physical therapy, existed by statute in 19 States as of March 15, 1964.[64] By including construction of the medical practice acts, mandatory or permissive licensure laws for physical therapists exist in all States except Missouri and Texas.[65] Permissive legislation authorizes only those who meet prescribed qualifications to use the designation "registered physical therapist" or "R.P.T." and to hold themselves out to the public as licensed. Thus, under permissive statutes, masseurs, athletic trainers, physical training students, and other persons may provide physical therapy without meeting statutory qualifications, though they may not represent themselves as registered or licensed therapists. Even in those States, however, the public is not totally unprotected because most often those patients with a condition requiring professional care come to the therapist by prescription of a physician who can exclude use of unqualified personnel.

Virtually all statutory definitions of physical therapy contain some limitations on the scope of practice, although the definitions may be very simple[66] or quite detailed.[67] In many States physical therapy does not include the use of electricity for surgical or cauterization purposes or the use of X-rays or radium for diagnostic or therapeutic purposes.[68] Of course, these restrictions are less effective in jurisdictions with permissive licensure since they do not apply to physical therapy provided by unlicensed practitioners. The same is true for frequent statutory provisions that licensed therapists must practice only on the prescription or under the direction and supervision of a licensed physician.[69] In States with permissive licensure a physical therapist is required to practice under medical supervision only if he is licensed.

Although primary public protection may be obtained by requiring physical therapists to work under physicians' supervision, it is also important that licensure statutes require graduation from an accredited collegiate program of physical therapy education. Accreditation standards are promulgated and applied by the Board of Schools of the American Physical Therapy Association, and by the Council on Medical Education and Hospitals of the American Medical Association. In addition to licensure requirements, the American Physical Therapy Association maintains a voluntary registry which, with the assistance of the medical profession, has established educational standards for physical therapists. In the absence of universal and uniform licensure, this registry is relied upon by many health practitioners and institutions.

5. Clinical Laboratory Personnel

Clinical laboratories and the personnel operating them are relatively recent additions to health services. The first clinical laboratory in the United States was established in 1895,[70] and the occupation of medical technology was established about the time of World War I.[71] A clinical laboratory is one which uses "specialized apparatus, equipment, and methods for the purpose of obtaining scientific data which may be used as an aid to ascertain the presence, progress, and source of disease in human beings."[72] Medical technologists employed in these laboratories are generally "engaged in the practice of standardized or experimental procedures, the results of which are interpreted by the physician in the diagnosis of disease."[73]

Statutory regulation of clinical laboratory technology has, in general, been a very recent development. The statutes of 17 U.S. jurisdictions currently regulate technologists, laboratories, on both.[74] For medical technologists, California has the most stringent educational and training requirements; a college degree and laboratory apprenticeship are required, as is a comprehensive qualifying examination.[75] However, some jurisdictions with legislation on the subject do not provide requirements for any laboratory personnel,[76] while others prescribe educational and training requirements only for supervisory personnel.[77] Other provisions of existing statutes also vary from State to State: hospital as well as independent laboratories are regulated in five States,[78] and performance evaluations of regulated laboratories are provided for in five States.[79]

Federal legislation relevant to this area also exists, and comprehensive federal regulation of clinical laboratories is possible under these programs, especially if adequate standards for laboratory services paid for with Federal funds are not provided by the several States.[80] Additional Federal legislation, not tied to federally funded health services, may be necessary for comprehensive regulation of clinical laboratories, because State regulations of laboratory personnel and performance cannot effectively control mail-order and other interstate operations of commercial laboratories.[81]

There is persuasive and persistent evidence that much clinical laboratory work is alarmingly inaccurate and unreliable. This conclusion has been reached by several surveys of the performance of clinical laboratories over the last 20 years. The first such study, conducted in Pennsylvania in 1947, demonstrated that over 50 percent of the results obtained by participating clinical laboratories were unsatisfactory.[82] Subsequent surveys in Canada and the United States,[83] including one in Connecticut [84] and four in Minnesota, have all revealed errors in more than 25 percent of laboratory determinations. Some of these studies have also attempted to discover reasons for such poor performance. Several have found that laboratory accuracy drops as the educational level of laboratory personnel declines.[85] Accuracy of laboratory results was also found to vary according to the size of hospitals, the availability of pathologists, and the quantity of chemistry workloads.[86]

Inaccurate laboratory reports present an extreme danger to the public health because the modern physician has been trained to place great reliance upon laboratory determinations in diagnosis and treatment, and in monitoring the course of therapy.[87] In fact, "an erroneous report is worse than none, since it gives the physician a false direction, which might have been avoided if he depended only on clinical judgment." [88]

On the other hand, solutions to problems caused by inadequately trained and supervised laboratory technologists are complicated by manpower shortages in certain areas of the country[89] which might become more serious because the annual number of laboratory tests is expected to double within 10 years.[90] Primary causes of the current manpower shortage are the generally inadequate salaries paid to medical technologists and other clinical laboratory personnel, and problems related to the resultant lack of status and prestige for these occupations.[91] Regardless of its causes, however, the present manpower shortages could be aggravated by unrealistic regulations designed to increase the training and educational requirements for laboratory personnel in excess of the needs for safe and effective utilization of automatic equipment which is being incorporated into laboratory practice.

Until recently, regulation of medical technologists has been largely nongovernmental. Voluntary programs of personnel certification and educational accreditation are conducted by the American Society of Clinical Pathologists (ASCP) and the American Society of Medical Technologists (ASMT), through a Board of Registry and a Board of Schools, as well as by other organizations.[92] The ASCP-ASMT evaluation programs play a significant role in improving the quality of laboratory work, although many persons employed as medical technologists are uncertified and uncertifiable.[93] In the face of acute manpower shortages, however, nongovernmental regulation of clinical laboratory personnel apparently has failed to achieve the basic purpose behind licensure statutes, namely, the enforcement of minimum standards of competence that all must demonstrate—something it was never intended to do in the first place.

It may well be that personnel licensure is not—or at least not yet—the appropriate solution for problems of clinical laboratory technology. At a time when an acute manpower shortage already exists, and when rapid changes are being made in the nature and use of laboratory procedures, stringent licensure standards should not inhibit the development of new personnel categories and improved technological processes. Moreover, since laboratory personnel are not directly involved in patient care,[94] the protection of patients does not require regulation of these practitioners, if laboratory results are otherwise adequately controlled. Accordingly, increased attention should be given to devising direct regulation of laboratory performance through standards of accuracy and reliability for laboratory procedures and determinations.[95]

C. Allocation and Use of Allied and Auxiliary Health Personnel

1. Licensure and Delegation of Tasks and Duties

The legal authority for functions that nurses and other health personnel may be called on to perform and the extent of medical supervision required are becoming increasingly difficult problems. As medicine develops new methods of treatment requiring specialized skills, new functions will need to be authorized for existing personnel. New kinds of specialized personnel empowered to perform new functions will also be needed. For example, do the medical and nursing practice acts authorize specially trained nurses, working under standing orders of physicians, to administer cardiopulmonary resuscitation by means of an electrical device to patients suffering from heart stoppages?[96] Good patient care may require that this function be performed by nurses and others in many instances, but legal authority for this effective use of personnel is dubious.

It is questionable whether broad and general statutory definitions of the allied and auxiliary professions and occupations provide usable guides for the health professions, licensing agencies, legal authorities, and the public. In support of the prevailing generality is its flexibility which permits expansive interpretations of the nursing practice acts:[97]

> Essentially the statutes define professional nursing as involving the carrying out of treatment prescribed by a licensed physician and the application of nursing skills. Obviously, such definitions do not identify the particular functions in which a professional nurse may engage.
>
> Probably the lawmakers should be commended for their foresight rather than criticized for ambiguity. A half-century ago when the first nursing practice acts were adopted the principal function of the nurse was to aid the physician by performing tasks under his direction. The functions of nursing are constantly expanding, and precisely drawn statutory definitions of the functions of nursing could not be kept up to date with changes in professional practices. However, the growing body of judicial decisions reflects the development of the profession of nursing and its expanding responsibilities in the wake of medical progress.

On the other hand, the very necessity of interpretation of the definitions, as well as uncertainties regarding possible reinterpretation, may inhibit innovations in professional nursing. For example, potential legal difficulties have made physicians reluctant to delegate and nurses hesitant to accept the performance of any task outside the conventional scope of nursing. A licensure process dependent upon a growing body of judicial decisions for clarification and development is thus inconsistent with the understandable and salutary desire of health professionals to avoid litigation.

The legal rules and principles regarding delegation of tasks by physicians to nonphysicians require clarification. Clearly, the primary attempts by the courts on a case-by-case basis to clarify the problem and to develop standards, in accordance with the dual policy goals of (1) protection of the patient against acts by those not sufficiently qualified to perform them and (2) increased physician productivity by expanded delegation of tasks, cannot achieve much less rigidity than the jury instruction in the *Whittaker*[98] case discussed chapter I.

Illustrative of these problems is the often posed question of whether a professional nurse may administer intravenous medications. Resolution of this problem under present licensure law is deceptively simple. The statutes merely state that a nurse may administer "treatments and medications as prescribed by a licensed physician."[99] This resolution clouds the issue and leaves unanswered questions it should help solve. The difficulty is that resolution of the very difficult scope-of-practice issues by the definitional process alone without establishing standards by which the public, the courts, nurses and physicians can determine what nurses may legally do leaves many questions unanswered. Bernard Hirsh of the Legal Division of the American Medical Association has commented that:

> The statutes of the various States which define professional nursing are too nebulous to provide a usable guide in determining the functions in which a nurse may legally engage. Essentially the statutes define professional nursing as involving the carrying out of treatment prescribed by a licensed physician and the application of nursing skills. Obviously such definitions do not identify the particular functions in which a professional nurse may engage.[100]

Another illustration of the problem concerns the delegation of tasks by physicians to unlicensed assistants who have received special training in courses and programs which are not part of an established health manpower category. This problem arose in the *Whittaker*[101] case, discussed in chapter I, where the court dealt with the problem by leaving the determination of acceptability of the delegation to a lay jury. Nevertheless, the determination by a jury of legality or illegality on the basis of medical custom and usage in the jurisdiction may not correspond to wisdom, logic, the realities of patient safety, or good medical care.

The paucity of cases determining the scope of professional nursing practice indicates that statutory definition and judicial interpretation may be a fruitless method of resolving this question. The severe sanctions for violating the medical and nursing practice acts impel avoidance of litigation. A justiciable case is usually not presented unless the nurse or physician-delegator risks possible criminal prosecution and civil malpractice liability for violating the medical practice act or the nursing practice act. Potential harsh or financially damaging penalties make unlikely judicial clarification and expansion of the traditional scope of the practice of nursing. The extent to which various licensing agencies deal with scope-of-practice issues is not known, but the paucity of appellate case reports indicates that these issues seldom reach the courts. Scope-of-practice issues may be involved, however, in criminal prosecutions for violations of licensure statutes,[102] in civil suits based upon negligence or malpractice,[103] in judicial review of disciplinary actions taken by licensing agencies,[104] and in declaratory judgments.

The obstacles to a declaratory judgment, however, are numerous. The courts have rarely given declaratory judgments unless the issue involves only a question of statutory interpretation not intertwined with facts [105] and which involves only functions which are clearly within the competence of the occupation seeking expansion of its scope of practice.[106] Even if a justiciable issue exists and it is clear what the court should do, declaratory relief may be denied. Common reasons for denial are that the administrative remedies have not been exhausted [107] or that an adequate administrative remedy exists.[108] Declaratory judgments have also been denied because there is not sufficient certainty of enforcement.[109]

In one case a court refused to issue a declaratory judgment where the attorney general had issued an opinion contrary to customary practice.[110] Furthermore, at least one court has refused to require a licensing board to prescribe certain qualifications for licensure, such as age, education, and moral character—a duty expressly conferred upon said licensing board by statute.[111] In conclusion, the obstacles to judicial declaratory judgment limit the usefulness of this method of resolving questions of scope of practice and redistribution of tasks and duties.

Presented on the one hand with vague statutory language, and on the other with severe legal sanctions for violation of the practice acts,[112] physicians and nurses in many States have made frequent and strenuous efforts to define the functions of professional nursing through attorney-general opinions or joint policy statements of the medical and nursing professions.[113] However, these efforts have resulted in only modest changes for a few specific nursing procedures.[114] Furthermore, the attorney-general opinions, even when not based solely upon literal and rigid interpretation of statutory language, are not legally binding, although they may reduce the probability of legal prosecutions or mitigate the severity of legal penalties.

In dealing with the problems of administration of intravenous medication discussed above, the attorney general of New York in 1942 issued an opinion that the medical and nursing practice acts did not authorize nurses to administer intravenous medications.[115] Persuasive at that time was the consensus within the medical profession that intravenous procedures should not be performed by nurses. Twenty years later the attorney general of New York reconsidered the question [116] and concluded that a registered professional nurse may lawfully administer an intravenous procedure on the prior specific order of a licensed physician. The opinion affirms the responsibility of the physician for direction of the administration of each specific intravenous procedure and urges inclusion of training programs in the nursing curriculum adequate to qualify nurses for this task. The advances that had taken place in medicine and nursing in the intervening 20 years and the changed attitude within the medical profession on delegation of this function were deemed decisive in reaching this interpretation of the statute.

The latter attorney general opinion stressed the importance of whether the particular procedure could be classed as a dependent or an independent procedure. Dependent functions are those performed pursuant to specific medical orders and carried out under the supervision of a physician.[117] Independent functions are those specified in the Nursing Practice Acts, such as observation and reporting of symptoms, recording of facts, and supervision of auxiliary personnel. The opinion states that in the performance of dependent functions the health and safety of the patient are protected by the physician's professional training. Consequently, the services which the nurse may render under such circumstances are much broader than would be the case for independent nursing services. The dependent-independent services distinction is an important standard because it points to the real distinction between a nurse and a physician—the nature of the medical judgments that each is capable of making. The distinction has been elaborated upon by Nathan Hershey of the Health Law Center at the University of Pittsburgh. He suggests that a criterion for determining whether specific acts are within the sole province of the physician or within the province open to both physician and nurse could be:

> * * * the nature of the judgments required to perform them properly. Stated another way: Are they such that the public's safety demands that they only be made by a person qualified by education and by state examination to practice medicine? Many technicians and nurses

could develop proficiency in performing the physical tasks involved in many complicated therapeutic procedures in relatively short periods of time. However, the essence of their safe and successful performance is the competence to decide when and how each step in a procedure is to be carried out, to recognize problems as they arise, and to make modifications in the procedure as the situation demands, or halt it entirely. These decisions often require a physician's judgment, and no one except a physician, regardless of the individual's dedication and conscientiousness, may qualify as a substitute when these judgments are to be made.[118]

Two States have attempted to meet these problems by incorporating an omnibus clause on delegation of functions in their medical practice acts.[119] These clauses provide that the medical practice act shall not be construed as prohibiting service rendered by a person acting in his customary capacity, not in violation of any statute, and not holding himself out as a physician, provided he acts under the direction of or under the supervision of a physician.

Legislation containing standards for delegation referred to in the conclusion of the analysis of legal regulation of physicians is another way to resolve the issue. Such standards must, of course, be flexible to adjust to changing requirements in patient care and the upgrading of the education, training, and skills of allied and auxiliary health manpower. Broad legislative standards which can be given specific definition by a body with expertise will probably result in better implementation than rigidly specified statutory provisions. Consideration must be given to how much limitation should be placed on delegation by the governmental process and how much should be left to the private discretion of the professions, occupations, and the institutions responsible for the delivery of personal health care.

The creation of an administrative agency to resolve questions involving scope-of-practice problems would be advantageous for a number of reasons. First, such an administrative agency, unlike the courts or attorneys general, could possess the necessary expertise and experience to make qualified decisions without having to rely exclusively on the opinions and testimony of others. Another important advantage offered by an administrative agency would be its ability to issue declaratory judgments and to formulate rules and regulations respecting the distribution of tasks and duties among the members of the matrix organization.

Delegation of specific tasks should not relieve the physician or other skilled delegator of responsibility for assuring that: the delegatee is properly trained and educated to perform the task in question, has de facto demonstrated capability to perform the task, and does in fact perform the task properly on the patient or patients in question with full understanding of the limits of his skill and knowledge. Delegation most probably can be carried out with a higher margin of safety in an institutional setting because of other built-in safeguards, such as the ever-expanding institutional civil liability for the improper conduct of its employees with respect to patient care.[120]

2. Licensure and Civil Liability

One possible consequence of licensure statutes which can rigidly delimit the functions of health personnel is increased risk of civil liability. Violations of statutory circumscriptions, even though sanctioned by prevailing customs and conditions of practice might be considered evidence of negligence. This possibility is illustrated by *Barber* v. *Reinking*,[121] a recent case of alleged negligence by a practical nurse, working in a physician's office, in administering a polio immunization injection. The state statutes authorized professional nurses "to administer medications, treatment, tests and inoculations * * *,"[122] whereas practical nurses were permitted to "give medication."[123] The court held that the inoculation performed by the practical nurse was a violation of the licensure statute, and that the jury might consider this violation in determining her negligence:[124]

> In accordance with the public policy of this State, * * * one who undertakes to perform the services of a trained or graduate nurse must have the knowledge and skill possessed by a *licensed registered nurse*. The failure of Nurse Reinking to be so licensed raises an inference that she did not possess the required knowledge and skill to administer the inoculation in question.
>
> The Plaintiff was entitled to have the jury consider this violation of the statute together with the other evidence in the case in determining whether the nurse was negligent.

The court did not discuss the statutory provision under which the professional nurse can delegate to other persons engaged in nursing the function which the professional nurse is authorized to carry out.[125] The real question in *Barber* v. *Reinking* is whether the physician could delegate such tasks to practical nurses if the professional nurse could. The *Barber* court also found no merit in the contention that the statutory authorization for practical nurses to administer medication covered injections, and in reaching this decision the court disregarded defendant's testimony that it was the local custom and practice for practical nurses to give injections because this custom was in violation of the statute as construed by that court.

Barber illustrates the principle that violation of a statute which sets up a standard of conduct either is evidence of or is negligence per se.[126] This principle can be contrasted with another principle enunciated by Judge Lehman of the New York Court of Appeals in *Brown* v. *Shyne*,[127] which involved an action to recover for paralysis resulting from alleged negligent treatment by an unlicensed chiropractor. The court held that the trial judge erred in instructing the jury that it might infer negligence from the defendant's violation of a statute requiring all persons rendering medical care to be licensed. It might be noted that there were no provisions for licensure of chiropractic practitioners as such in New York State until 1963. The rationale of this decision as given by the court is that the licensure statutes are for the protection of the public in general against the risks of medical care being given by unlicensed practitioners and not against allegedly negligent acts and that the plaintiff as an individual was not within the class protected by the statute.[128] Judge Lehman also stated that proof of violation of the statute was irrelevant because said violation had no direct bearing upon the causation of the injury; for instance, defendant may have been competent even though he was not licensed. Analyzing the function of licensure the court said:

> Proper formulation of general standards of preliminary education and proper examination of the particular applicant should serve to raise the standards of skill and care generally possessed by members of the profession in this State; but the license to practice medicine confers no additional skill upon the practitioner, nor does it confer immunity from physical injury upon a patient if the practitioner fails to exercise care. Here, injury may have been caused by lack of skill or care; it would not have been obviated if the defendant had possessed a license yet failed to exercise the skill and care required of one practicing medicine.[129]

The reasoning of the *Brown* court indicates that the proper function of licensure statutes is to protect the public against unqualified practitioners, not to provide compensation for those who are injured. If the practical nurse and the physician in *Barber* were in fact negligent, then recovery should have been given, but civil liability should not be used as another method of enforcing the licensure statutes. A licensure statute that so stratifies functions that any action is at the peril of civil liability effectively inhibits optimal delegation of functions and tasks.

D. Independent Practitioners

Unlike allied and auxiliary personnel, some limited health practitioners do not typically render their services under medical supervision or in medical settings. Like physicians, their practices are generally independent and entrepreneurial, and their licensure was originally designed to prevent fraudulent deception and commercial exploitation of the public. For optometrists and podiatrists, opportunities for such abuses were increased by the customary location of their offices in conjunction with commercial outlets for eyeglasses and shoes.

The salient problem posed by the licensure laws governing independent practice by nonphysicians is that such laws do not encourage them to work closely with other members of the health matrix organization. The licensure laws are generally effective in requiring educational, ethical, and training qualifications for the important functions that they perform as well as in dealing with the problems of commercialization and deception. They do not, however, require that these allied personnel work in conjunction with the physician—the greatest safeguard of quality of care.

1. Optometrists

Visual services and eye care are primarily provided by three categories of health personnel: ophthalmologists, licensed physicians specializing in medical and surgical care of the eyes, who may prescribe drugs and other treatment including lenses; optometrists, practitioners specially licensed in all States, who may examine the eyes for vision problems and eye diseases, prescribe and adapt lenses and other optical aids, and provide vision training; and opticians or dispensing opticians, licensed or registered in 17 States, who may make and fit eyeglasses prescribed by an ophthalmologist or optometrist.[130] In addition, orthoptists, specialized in teaching eye exercises, may work under ophthalmologists and optometrists. The optometrist has the broadest scope of functions, except, of course, for the ophthalmologist.

A significant disadvantage inherent in the independent rendition of limited medical services by nonphysicians is the inability of such persons to recognize medical problems beyond the scope of their limitations. A recent opinion of the New York State attorney general [131] advised that it is the duty of the optometrist not only to do refractions and prescribe glasses but to use his training to uncover any need for the patient to seek further medical advice and help. If he finds such a need, the optometrist must advise the patient to seek additional medical aid. Referral of a patient by an optometrist to an ophthalmologist is a sound requirement.

The question that arises, however, is whether optometrists are sufficiently qualified by their education and preparation to recognize the existence of symptoms that may indicate eye disease, neurological disease, or general systemic medical problems. Although all existing colleges of optometry in the United States are accredited by the same nationally recognized accreditation body and offer longer programs of training than many licensure statutes require, it is true that, basically, optometrists are prepared as refraction technicians, rather than as diagnosticians of diseases of the eye and of other diseases the diagnosis and treatment of which may be assisted through examination of the eye. Since patients have direct access to optometrists, there is no way to assure referral to an ophthalmologist, if necessary, except by relying on the judgment and initiative of the optometrist. Such services as are involved in refraction and prescription of lenses can be provided by optometrists. It is not realistic, however, that optometrists, especially with present training, should carry the critical responsibility for referral to a physician on suspicion of eye or other disease.

Licensure laws governing optometrists do not require or even encourage them to work in conjunction with physicians—the surest solution to problems of diagnosis and referral. How foreign this concept is to the practice of optometry is indicated by the fact that, in one State, it was deemed necessary to obtain an attorney general's opinion that a licensed optometrist is not prohibited from entering the employ of or a partnership with a licensed physician.[132] Not only are such arrangements not unlawful, they are positively desirable. Indeed, the ultimate goal of the licensure process should be an affirmative requirement that patients be referred to optometrists only after examination by a physician. Such a requirement may be unrealistic within the present organization of health services and health service education, but as health services increasingly incorporate a team approach and group practice, coordination of both preparation for and delivery of these services will become more feasible.

2. Podiatrists

Podiatrists, formerly called chiropodists, are licensed in all States to diagnose, prevent, and treat diseases and disorders of the foot. Fundamentally, the podiatrist is a foot therapist whose functions include performing minor surgery for corns, calluses, and bunions, prescribing exercises, and fitting orthopedic shoes. The most frequently raised question regarding the scope of practice of podiatrists concerns their prescription of drugs. Numerous opinions of attorneys general have indicated that podiatrists may prescribe drugs, including narcotics, but only for local application and treatment of the foot.[133]

Statutory requirements for education and examination of podiatrists are generally adequate to assure competence for the specified functions. Several statutes require a clinical internship, and most licensing boards (often boards of medical examiners with a committee on podiatry) rely on the accreditation of colleges of podiatry by the Council on Education of the American Podiatry Association. Despite such accreditation, however, many podiatrists are admittedly not prepared by their training to recognize medical problems beyond their limited scope of practice:[134]

> Podiatrists should be well trained in the recognition of systemic diseases and mechanical defects which may involve the lower extremities. In practically all of the colleges, these subjects are taught by doctors of medicine through the lecture method.
>
> To provide the podiatrist with the so-called "High Index of Suspicion" for systemic conditions, the students should have the opportunity at the bedside to apply and practice diagnostic techniques with actual patients. Although teachers are attempting to provide this experience, it is sporadic and, more often than not, completely lacking.

Although improvements in the education and training of podiatrists are necessary and desirable, the objective of protecting patients whose foot conditions may be indicative of general medical problems may be more readily attained by requiring podiatrists to work in conjunction with physicians. Not only the effectiveness but, more importantly, the safety of podiatrists' services would be enhanced by their coordination with orthopedic surgeons, internists, or other physicians.

SUMMARY AND CONCLUSIONS

The key issue in the licensure of allied and auxiliary health personnel is the scope of functions which may be properly delegated to them and the educational qualifications to permit such delegation safely. The shortage of all skilled health personnel, both physicians and others, new scientific and technological developments, and new methods of organizing health services have made the question of delegation and use of allied health personnel the critical issue to be resolved if our supply of health manpower is to be used effectively and productively.

Analysis of the legal regulation of medical personnel other than physicians indicates that licensure laws restrict optimal allocation of tasks among members of the medical manpower matrix. These restrictions may take the form of malpractice judgments or criminal sanctions ranging from loss of licenses to other penalties. The many and complex factors involved in the issue of delegation appear to render the judicial process less well suited than the legislative process to achieve resolution of the problem.

If the licensure laws are amended to authorize broadened scope of functions for qualified personnel, and an administrative procedure adopted to implement such legislation, a flexible approach to current categories of health personnel will be required. Consideration will need to be given to new categories of manpower, mandated by technological developments, to perform tasks which may have been unknown one or more years before. Resolution of the problem of allocating tasks among members of the medical manpower matrix will depend, in large measure, on the present and projected character of the system of delivering medical care.

FOOTNOTES

[1] See ch. 1, § A. supra.

[2] See Friedman, "Freedom of Contract and Occupational Licensing 1890–1910: A Legal and Social Study," 53 Calif. L. Rev. 487, 495–96 (1965).

[3] For basic distinctions between mandatory and permissive licensure, see §§ B.1, a., B.3.a. infra.

[4] See ch. 1, § A.1.b. supra.

[5] Ibid.

[6] Statutory rules designed for ordinary circumstances may be judicially modified for extraordinary situations, such as emergencies, although the precise modifications are not always predictable. See Hershey, "Scope of Nursing Practice," 66 Am. J. Nursing 117, 120 (1966).

[7] See ch. 1, §§ A.1.a., b. supra; app. 2.A., 2.B.

[8] See generally, *Health Is a Community Affair,* Report of The National Commission on Community Health Services (1966). See also Coggeshall, *Planning for Medical Progress through Medical Education* 24–27 (1965).

[9] Cf. ch. 1, § A.1.b. supra.

[10] Except, of course, for physicians and other personnel with broader or superior licenses.

[11] Cf. ch. 1, § A.1.b. supra.

[12] See *People* v. *Whittaker,* No. 35307, Justice Court of Redding Judicial District, Shasta County, Calif. (December 1966); *Magit* v. *Bd. of Med. Examiners,* 57 Calif. 2d 74, 366 P.2d 816, 17 Calif. Rptr. 488 (1961); both of which are discussed in ch. 1, § A.1.b. supra.

[13] A.M.A. Commission on Nursing "Mandatory vs. Permissive Licensure for Nurses," 195 J. Am. Med. Association 496 (1966).

[14] Lesnik and Anderson, *Nursing Practice and the Law,* 90–91 (2d ed. 1955).

[15] Lesnik and Anderson, supra note 14.

[16] A.M.A. Commission on Nursing, supra note 13, at 497.

[17] See the statutes of Iowa, Michigan, Mississippi, New York, North Carolina, Ohio, Oklahoma, South Carolina, and West Virginia, set forth in app. 10.

[18] See the statutes of Arkansas, Connecticut, Indiana, and Louisiana, set forth in app. 10, 12.

[19] The quoted definition has been adopted as a model definition by the American Nurses' Association. It has been enacted in the statutes of Alabama, Alaska, Colorado, Delaware, Hawaii, Idaho, Illinois, Kansas, Kentucky, Montana, New Hampshire, North Dakota, South Carolina (regulation), Utah, and Washington. Variations of the model definition exist in Arizona, Florida, Maine, Nevada, North Carolina, and Oregon. See app. 10.

[20] See the statutes of Arkansas, Iowa, Louisiana, Michigan, New Jersey, New York, Ohio, Rhode Island, Tennessee, Vermont, Virginia, West Virginia, and Wisconsin, set forth in app. 10.

[21] See the statutes of Arkansas, California, Louisiana, Michigan, New Jersey, New York, Ohio, Tennessee, Vermont, Virginia, and West Virginia, set forth in app. 10.

[22] See app. 10A.

[23] Ibid.

[24] Massachusetts General Laws, ch. 112, § 80b(15) (1965).

[25] Separate boards for practical nursing exist in California, Colorado, Georgia, Louisiana, Texas, Washington, and West Virginia.

[26] See app. 11. In Georgia, Maryland, and Mississippi, professional nursing schools are approved by the State department of education.

[27] See notes 112–115 and accompanying text.

[28] App. 11, "Curriculum (Duration or Courses)" column.

[29] Id., "Hospital Relationship" column.

[30] Id., "Financial Facts," "Physical Plant," "Library," and "Faculty" columns.

[31] Id., "Survey or Site Visit" column.

[32] Id., "Reliance on National Accreditation" column; Calif. Bus. and Prof. Code § 2786.5; Nev. Rev. Stat. § 632.450 (1957).

[33] The Nurse Training Act of 1964 requires junior colleges seeking federal project grants to furnish a certificate of reasonable assurance of meeting accreditation standards of the National League for Nursing. 42 U.S.C. §§ 291c, 291o, 293, 293a, 293e, 293h, 296 et seq. (1964). See also The Health Professions Educational Assistance Act of 1963, 42 U.S.C. §§ 292–292b, 292d–292j, 293–293h, 294–294e (1964).

[34] See, e.g., R. E. Brown, *Report of a Survey of Nursing Education in North Carolina,* sponsored by the North Carolina Board of Higher Education, the North Carolina Medical Care Commission, and the North Carolina State Board of Education, July 1964.

[35] American Nurses' Association, *Educational Preparation for Nurse Practitioners and Assistants to Nurses,* Position Paper, 1965, at 6–8. See also Task Force on Health Manpower, National Commission on Community Health Services: *Health Manpower, Action to Meet Community Needs,* 106 (1967).

[36] Ibid.

[37] See A.N.A. Commission on State Boards of Nursing, *Comprehensive Guide for the Understanding of Examination Procedures Including the Maintenance of Security and the Administration of the State Board Test Pool Examination,* 1964.

[38] See American Nurses' Association, *Facts About Nursing,* 52–54 (1966 ed.).

It is apparent from the large number of nurses holding multiple licenses and the large number of licenses issued by endorsement that licensed professional nurses encounter little difficulty in obtaining licensure recognition in other States.

[39] Interview with Vera Keane, Executive Director, American College of Nurse-Midwifery, Nov. 23, 1966.

[40] N.Y.C. Health Code § 43.03(c)(3), as amended Feb. 9, 1966. The amendment is set forth in app. 15.B.

[41] New Mexico Department of Public Health, Nurse-Midwife Regulations for New Mexico, § IV (1964), set forth in app. 15.A.

[42] Interview with Vera Keane, Executive Director, American College of Nurse-Midwifery, Nov. 23, 1966.

[43] See app. 15.B.

[44] See app. 15.A.

[45] "Vocational nurses" are licensed in California and Texas.

[46] *Facts About Nursing,* op. cit. supra note 38, at 190.

[47] The quoted definition has been adopted as a model by the American Nurses' Association. It has been enacted in the statutes of Alabama, Alaska, Colorado, Delaware, Hawaii, Idaho, Kansas, North Dakota, Pennsylvania, South Carolina, (regulation), Utah, and Vermont. Variations of the "model" definition exist in Florida, Illinois, Kentucky, Maine, Montana, Nevada, and Washington. See app. 12.

[48] See app. 12.

[49] See the statutes of Georgia, Oklahoma, Rhode Island, and Wisconsin, set forth in app. 12. Cf. the statutes of Michigan and Mississippi.

[50] See the statutes of Indiana, Iowa, Missouri, New Mexico, and Tennessee, set forth in app. 12.

[51] See also the statutes of Arkansas, Louisiana (§ 37–911), Massachusetts, New Hampshire, New York, Texas, Virginia, and Wyoming, set forth in app. 12.

[52] See app. 12 and A.M.A. Law Department, "The Legal Scope of Nursing Practice," 19 J. Am. Med. Association 269 (Apr. 11, 1966).

[53] Ibid.

[54] See note 25 supra and accompanying text.

[55] See note 37 supra and accompanying text.

[56] National League for Nursing, Department of Practical Nursing Programs: *Policies and Procedures of Accreditation,* October 1965; National League for Nursing, Department of Practical Nursing Programs: *Criteria for the Evaluation of Educational Programs in Practical Nursing,* 1965.

[57] App. 14 "Board Approves Schools" column.

[58] Id., "Curriculum (Duration or Courses)" column.

[59] Id., "Survey or Site Visit" column.

[60] Id., "Hospital Relationship" column.

[61] American Nurses' Association, *Facts About Nursing,* 172, 175 (1966 ed.).

[62] See authorities cited note 35 supra.

[63] Table, Physical Therapy Practice Acts, compiled by the American Physical Therapy Association Board of Directors' Subcommittee on Legislation, 45 Phys. Therapy 502–505 (May 1965).

[64] Unpublished statutory survey conducted by the Law Department of the American Medical Association.

[65] See notes 63 and 64 supra.

[66] See, e.g., N. Mex. Stat. § 67–10–2 (1961).

[67] See, e.g., Conn. Gen. Stat. § 20–66 (1958).

[68] See, e.g., Okla. Stat. title 59, § 887.2 (Supp. 1965).

[69] Cf. 43 Ops. Attorney General 157 (Calif. 1964), ruling that a physician or surgeon must supervise the practice of a registered physical therapist, but need not always be physically present.

[70] Alcuin, "Medical Technology," 35 Minn. Medicine 331 (1952).

[71] Hinman, "The Education and Recognition of Technical Groups Associated with Medicine," 59 J. Am. Dental Association 147, 149 (1959).

[72] Calif. Bus. and Prof. Code § 1205.

[73] Alabama Code, title 46, § 158 (1958).

[74] Alabama, California, Connecticut, Delaware, District of Columbia, Florida, Hawaii, Illinois, Louisiana, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Texas.

Of the 34 States which currently do not in any way regulate clinical laboratory technology, seven plan to do so in the near future. Bauer, "The National Laboratory Crisis," Hosp. Practice 67 (1967).

[75] Calif. Bus. and Prof. Code §§ 1260–1263. For a summary of the California statute, see app. 16.

[76] Delaware, District of Columbia, Louisiana, New Hampshire, and Texas.

[77] Illinois, New Jersey, New York, and Rhode Island.

[78] California, Maryland, New Hampshire, New York, and Texas.

[79] California, Florida, Massachusetts, Pennsylvania, and Rhode Island.

[80] See, e.g., H.R. 6418, § 8 currently before the 90th Congress.

[81] Such regulation is provided by H.R. 6418, § 5, currently before the 90th Congress.

[82] Belk and Sunderman, "A Survey of the Accuracy of Chemical Analyses in Clinical Laboratories," 17 Am. J. Clinical Pathology 853 (1947).

[83] See Bauer, supra note 74 at 67.

[84] Snavely and Golden, "A Survey of the Accuracy of Certain Chemical Determinations," 13 Conn. State Med. J. 190 (1949).

[85] Bauer, supra, note 74 at 69; see Belk and Sunderman, supra note 82. Snavely and Golden, supra note 84.

[86] See Bauer, supra note 74.

[87] See Shively, "The Significance and Evaluation of Laboratory Data in Clinical Medicine," 47 Ind. State Med. Association J. 982 (1954); Schwitalla, "Duties and Privileges of Medial Tehnologists," 37 Hosp. Progress 51 (1956).

[88] Caughey, "Auxiliary Personnel in Medical Practice," 48 Am. J. Pub. Health 1049 (1958).

[89] See Bauer, supra note 74 at 67; Russell and Larson, "Recruiting for Careers in Medical Technology," 30 Hospitals 37 (1956).

[90] See Bauer, supra note 74 at 67. See also Editorial, "Why Laboratory Standards are Substandard," 88 Modern Hosp. 51 (1957).

[91] Bauer, supra note 74 at 72.

[92] See app. 18.

[93] See note, "The Desirability of State Licensing of Medical Technologists," 44 Minn. L. Rev. 1125, 1129–32 (1961), and authorities there cited.

[94] However, some clinical laboratory personnel may perform venipunctures for test purposes. See, e.g., Calif. Bus. and Prof. Code §§ 1242–1243.

[95] Compare existing regulations of the food and drug industries, which consist primarily of controls of the purity, safety, and efficacy of products, rather than the qualifications of personnel.

[96] See the account of such practice and its benefits in Standish, Michigan in News Release, Los Angeles Times, pt. V. p. 3, Nov. 24, 1966.

[97] Hirsh, "The Legal Scope of Industrial Nursing Practice," 169 J. Am. Med. Association 1072 (1959).

[98] *People* v. *Whittaker,* Civil No. 35307, Justice Court of the Redding Judicial District, Shasta County, Calif., December 1966.

[99] See, e.g., the model definition set forth in app. 10. The Oregon statute is unique in authorizing professional nurses to administer "medications and treatments, whether

the piercing of tissues is involved or not." Oreg. Rev. Stat. § 678.015 (1953), set forth in app. 10.

[100] See note 97 supra.

[101] *People* v. *Whittaker,* Civil No. 35307, Justice Court of the Redding Judicial District, Shasta County, Calif., December 1966.

[102] Ibid.

[103] E.g., *Barber* v. *Reinking,* 68 Wash. 2d 122, 411 P. 2d 861 (1966).

[104] E.g., *Magit* v. *Board of Med. Examiners,* 57 Calif. 2d 74, 366 P. 2d 816, 17 Calif. Rptr. 488 (1961).

[105] See *State* v. *Borah,* 51 Ariz. 318, 76 P. 2d 757 (1938); *Wrigley's Stores* v. *Mich. Bd. of Pharmacy,* 336 Mich. 583, 59 N.W. 2d 8 (1953); *Powers* v. *Vinsant,* 165 Tenn. 390, 54 S.W. 2d 938 (1932).

[106] Compare *State* v. *Borah,* 51 Ariz. 318, 76 P. 2d 757 (1938) with *Kelley* v. *Bd. of Registry in Optometry,* 218 N.E. 2d 130 (Mass., 1966).

[107] *Florida St. Bd. of Medical Examiners* v. *James,* 158 So. 2d 574 (Fla. Dist. Ct., 1963); *Morrison* v. *Plotkin,* 77 So. 2d 254 (Fla., 1955); *Gelman* v. *Tenth Dist. Dental Soc'y of N.Y.,* 201 N.Y.S. 2d 644, 25 Misc. 2d 457 (1966). But see *Mitchell* v. *La. St. Bd. of Optometry Examiners,* 128 So. 2d 825 (La., 1961).

[108] *Fla. St. Bd. of Medical Examiners* v. *James,* 158 So. 2d 574 (Fla. Dist. Ct., 1963); cf. *Rogers* v. *Louisiana St. Bd. of Opt. Examiners,* 128 So. 2d 825 (La. Ct. App., 1961).

[109] See *Kelley* v. *Bd. of Registry in Optometry,* 218 N.E. 2d 130 (Mass., 1966). The court refused to issue a declaratory judgment where "[t]he Board [of Optometry] has no power to regulate the power of opticians * * *. There is no evidence of there having been harm to the optician's practice. There is no evidence that the Attorney General has acted on the opinion." Id. at 133.

[110] Ops. Attorney Gen. Mass. Pub. Doc. No. 12, p. 308, June 9, 1965.

[111] *Morrison* v. *Plotkin,* 77 So. 2d 254 (Fla., 1955).

[112] E.g. Calif. Bus. and Prof. Code §§ 2360–2411, 2426, 2795–2800.

[113] American Nurses' Association, *Developing Joint Policy Statements on Patient Care Procedures,* Memo. No. 5, Oct. 30, 1964.

[114] See e.g., "Closed-Chest Method of Cardiopulmonary Resuscitation," 65 Am. J. Nursing 105 (1965); A.N.A. Comm. on Nursing Practice, *The Nurse and Closed-Chest Cardiopulmonary Resuscitation,* Special Memo., June 1965.

[115] (1942) N.Y. Ops. Attorney Gen. 368.

[116] (1961) N.Y. Ops. Attorney Gen. 25. Accord, 26 Mont. Ops. Attorney Gen. (1956); (1963) Mo. Ops. Attorney Gen. files 25.

[117] See generally, A.M.A. Law Department, "The Legal Scope of Nursing Practice," 196 JAMA 269 (Apr. 11, 1966); see also American Nursing Association's Definition of Nursing Practice set forth in app. 10.

[118] Nathan Hershey, "Scope of Nursing Practice," 66 Am. J of Nursing 117, No. 1 (1966).

[119] Ariz. Rev. Stat. Ann., sec. 32–1421(6) (added 1964); Okla. Stat. title 59, sec. 492 (added 1965).

[120] See *Darling* v. *Charleston Community Memorial Hospital,* 33 Ill. 2d 326, 211 N.E. 2d 253, cert. denied, 383 U.S. 946 (1965) for an example of expanded institutional tort liability.

[121] 68 Wash. 2d 122, 411 P. 2d 861 (1966).

[122] Wash. Rev. Code § 18.88.285 (Supp. 1963).

[123] Wash. Rev. Code § 18.78.191 (Supp. 1963).

Although it was not mentioned in the court's decision, a prior opinion of the Washington attorney general had ruled that licensed practical nurses could not administer drugs or medications, either orally or by injection. [1959] Ops. Attorney Gen. No. 20 at 48.

[124] 68 Wash. 2d at 124, 411 P. 2d at 863. The court further indicated, however, that the jury must be instructed that the nurse's "negligence, inferred from the violation of the statute, must be a proximate cause for the injury sustained * * * in order to permit * * * recovery." Ibid.

[125] Wash. Rev. Code § 18.88.285 (Supp. 1963).

[126] See generally, Gregory, "Breach of Criminal Licensing Statutes in Civil Litigation," 36 Cornell L. Q. 622 (1951).

[127] 242 N.Y. 176, 151 N.E. 197 (1929).

[128] The reasoning, but not the result of this case, is criticized by Gregory supra, note 126.

[129] 242 N.Y. at 177, 151 N.E. at 198. Accord, *Hardy* v. *Dahl,* 210 N.C. 530, 187 S.E. 788 (1936), holding that the fact that unlicensed defendant naturopath was engaged in treating patients was not evidence of negligence.

[130] M. Pennell, *Health Manpower —1965, Health Resources Statistics* 158–59 (U.S. Public Health Service Pub. No. 1509, 1967).

[131] [1965] Ops. Attorney Gen. No. 152 (N.Y.).

[132] [1963] Ops. Attorney Gen. 54 (Mont.).

However, until quite recently (See A.M.A. News, Dec. 26, 1966, at 1, col. 1, col. 3), it was considered unethical for an ophthalmologist to employ an optometrist, under a June, 1955, resolution of the A.M.A. House of Delegates.

[133] E.g., [1960] Ops. Attorney Gen. (Conn.) (chiropodists cannot prescribe any medical preparation which would be absorbed by the body and enter the blood stream); [1953] Ops. Attorney Gen. 178 (Ind.) (podiatrists are not authorized to administer penicillin or other antibiotic drugs by injection or by any procedure other than local application); [1943] Ops. Attorney Gen. 347 (Ind.) (podiatrists may prescribe narcotic drugs for local anesthesia).

[134] American Podiatry Association, Special Commission on the Status of Podiatry Education: *Podiatry Education in the 1960's* (1961).

Appendix 10

Practice of professional nursing as defined in State nursing practice acts

A.N.A. model definition....	The term "practice of professional nursing" means the performance, for compensation, of any acts in the observation, care, and counsel of the ill, injured, or infirm or in the maintenance of health or prevention of illness of others, or in the supervision and teaching of other personnel, or the administration of medications and treatments as prescribed by a licensed physician or a licensed dentist; requiring substantial specialized judgment and skill and based on knowledge and application of the principles of biological, physical, and social science. The foregoing shall not be deemed to include acts of diagnosis or prescription of therapeutic or corrective measures.
State	
Alabama.................	Model definition. Alabama Code, title 46, § 189(34) (Supp. 1965).
Alaska....................	Model definition. Alaska Comp. Laws, § 35-3-124(5) (Supp. 1957).
Arizona..................	Substantially similar to the model definition. Arizona Rev. Stat., § 32-1601(5) (Supp. 1966).
Arkansas.................	A person practices nursing within the meaning of this act who for compensation or personal profit (*a*) performs any professional service requiring the application of principles of nursing based on biological, physical, and social sciences, such as responsible supervision of a patient requiring skill in observation of symptoms and reactions and the accurate recording of the facts, and carrying out of treatments and medications as prescribed by a licensed physician, and the application of such nursing procedures as involve understanding of cause and effect in order to safeguard the life and health of a patient and others * * *. Arkansas Stat., § 72-715 (1957).

Practice of professional nursing as defined in State nursing practice acts—Continued

State—Continued	
California	The practice of nursing within the meaning of this chapter is the performing of professional services requiring technical skills and specific knowledge based on the principles of scientific medicine, such as are acquired by means of a prescribed course in an accredited school of nursing as defined herein, and practiced in conjunction with curative or preventive medicine as prescribed by a licensed physician and the application of such nursing procedures as involve understanding of cause and effect in order to safeguard life and health of a patient and others. A professional nurse, within the meaning of this chapter, is a person who has met all the legal requirements for licensing as a registered nurse in the State and who for compensation of personal profit engages nursing as the same as hereinabove defined. California Bus. and Prof. Code § 2725.
Colorado	Model definition. Colorado Rev. Stat. § 97–1–2(1) (1963).
Connecticut	The practice of nursing is defined as follows: (*a*) The performing, for compensation and under the direction of a licensed physician, of any professional service requiring special education, knowledge and skill in nursing care of those mentally or physically ill and in the prevention of illness * * *. Connecticut Gen. Stat. § 20–87 (1958).
Delaware	Model definition. Delaware Code, title 24 § 1901 (Supp. 1966).
District of Columbia	Practice not defined by statute.
Florida	Substantially similar to the model definition. Florida Stat. § 464.021 (2) (1965).
Georgia	Practice not defined by statute. See rule 410.03.
Hawaii	Model definition. Hawaii Rev. Laws § 67–2(b) (Supp. 1963).
Idaho	Model definition. Idaho Code, § 54–1413 (Supp. 1965).
Illinois	Model definition. Illinois Rev. Stat., ch. 91 § 35.35(1) (Smith-Hurd 1966).
Indiana	For the purposes of this act the phrase "practice of nursing" shall mean and refer to any person who for compensation or personal profit (*a*) as a registered nurse performs any professional services requiring the application of principles of the biological, physical and social sciences, and nursing skills in the care of the sick, in the prevention of disease or in the conservation of health. Indiana Stat., § 63–901 (1961).

Practice of professional nursing as defined in State nursing practice acts—Continued

State—Continued	
Iowa	For the purpose of this title any person shall be deemed to be engaged in the practice of nursing as a registered nurse who performs any professional services requiring the application of principles of biological, physical or social sciences and nursing skills in the observation of symptoms, reactions and the accurate recording of facts and carrying out of treatments and medication prescribed by licensed physicians in the care of the sick, in the prevention of disease or in the conservation of health. Iowa Code, § 152.1 (1962).
Kansas	Model definition. Kansas Gen. Stat., § 65–1113(b)(1) (1964).
Kentucky	Model definition. Kentucky Rev. Stat., § 314.011(3) (Supp. 1966).
Louisiana	"Nursing" means that practice by a person who for compensation or personal profit (*a*) performs any professional service requiring the application of principles of nursing based on biological, physical, and social sciences, such as responsible supervision of a patient requiring skill in observation of symptoms and reactions and the accurate recording of the facts and carrying out of treatments and medications as prescribed by a licensed physician, and the application of nursing procedures that involve understanding of cause and effect in order to safeguard life and health of a patient and others; or (*b*) performs duties that are required in the physical care of a patient and in carrying out of medical orders as prescribed by a licensed physician, requiring an understanding of nursing but not requiring the professional service as outlined in (*a*). Louisiana Rev. Stat., § 37–911 (1950).
Maine	Substantially similar to the "model" definition. Maine Rev. Stat., ch. 69–A § 2 (II) (Supp. 1961).
Maryland	Practice not defined by statute.
Massachusetts	"Professional nursing" shall mean the performance for compensation of any of those services in observing and caring for the ill, injured or infirm, in applying counsel and procedures to safeguard life and health, in administering treatment of medication prescribed by a physician or dentist, or in teaching or supervising others, which are commonly performed by registered nurses and which require specialized knowledge and skill such as are taught and acquired under the established curriculum in a school for nurses duly approved in accordance with this chapter. Massachusetts Gen. Laws, ch. 112, § 80B (1965).

Practice of professional nursing as defined in State nursing practice acts—Continued

State—Continued	
Michigan	Unless otherwise provided in this act, the term registered professional nurse is defined as one who has been authorized by the state to perform any professional service requiring the application of principles of nursing based on biological, physical and social sciences, such as responsible supervision of a patient requiring skill in observation of symptoms and reactions and the accurate recording of same, and execution of treatments and medications as prescribed by a licensed physician, and the application of such nursing procedures as involve understanding of cause and effect in order to safeguard life and health, and the instruction, supervision of nurses, and the administration of nursing services in institutions and health agencies. Michigan Comp. Laws, § 338.360 (1948).
Minnesota	The practice of professional nursing means the performance for compensation or personal profit of a professional service in the care of those mentally or physically ill or in the prevention of illness or in the supervision of others engaged in caring for the ill or preventing illness which requires special education, knowledge and skill such as that ordinarily expected of an individual who has completed a course of instruction as described in section 148.211, subdivision 1. Minnesota Stat., § 148.29 (1957).
Mississippi	A Registered Professional Nurse is one who possesses a blend of intellectual attainment, attitudes, and manual skills based on the principle of scientific medicines acquired by the means of a prescribed course in a School of Nursing affiliated with a hospital recognized for such purposes by the State and practiced in conjunction with curative or preventive medicines by an individual licensed to do so by the State. Mississippi Code, § 8817(a) (1942).
Missouri	A person practices professional nursing who for compensation or personal profit performs, under the supervision and direction of a practitioner authorized to sign birth and death certificates, any professional services requiring the application of principles of the biological, physical or social sciences and nursing skills in the care of the sick, in the prevention of disease or in the conservation of health. Missouri Rev. Stat., § 335.010 (1966).
Montana	Model definition. Montana Rev. Codes, § 66–1222(1) (Supp. 1967).

Practice of professional nursing as defined in State nursing practice acts—Continued

State—Continued	
Nebraska	Practice of professional nursing shall mean the performance of any professional services requiring the application of principles of biological, physical, or social sciences and nursing skills in the care of the sick, in the prevention of disease, or in the conservation of health. Nebraska Rev. Stat., § 71–1, 132.06 (1966).
Nevada	Substantially similar to model definition. Nevada Rev. Stat., § 632.010 (1957).
New Hampshire	Model definition. New Hampshire Rev. Stat., § 326A:2 (1961).
New Jersey	"Professional nursing" is the performance for compensation of any professional service requiring the application of principles of nursing based on biological, physical and social sciences, including responsible supervision of a patient requiring skill in observation of symptoms and reactions and the accurate recording of the facts and carrying out of treatments and medications prescribed by a licensed physician, and the application of such nursing procedures as involve understanding of cause and effect in order to safeguard life and health of a patient and others. New Jersey Stat., § 45:11–23(b) (1963).
New Mexico	"Professional nursing" means the performance for compensation or personal profit of any professional services requiring the application of principles of the biological, physical or the social sciences and nursing skills in the care of the sick, in the prevention of disease or the conservation of health. New Mexico Stat., § 67–6–3 (1953).
New York	A person practices nursing as a registered professional nurse within the meaning of this article who for compensation or personal profit performs any professional service requiring the application of principles of nursing based on the biological, physical and social sciences, such as responsible supervision of a patient requiring skill in observation of symptoms and reactions and the accurate recording of the facts, and carrying out of treatments and medications as prescribed by a licensed physician or a licensed dentist and the application of such nursing procedures as involves understanding of cause and effect in order to safeguard life and health of a patient and others. New York Educ. Law, § 6901(2)(a) (1953)

Practice of professional nursing as defined in State nursing practice acts—Continued

State—Continued	
North Carolina	"Nursing" is a unique service provided for persons who are ill, injured, or experiencing alterations in normal health processes; it is the ministering to, the assisting of, and the sustained, vigilant, and continuous care of those acutely or chronically ill; the supervision of patients during convalescence, restoration, and rehabilitation; and the promotion of health maintenance. Nursing by Registered Nurse: The practice of nursing by registered nurse means the performance for compensation of any act in the observation, care, and counsel of persons who are ill, injured, or experiencing alterations in normal health processes; and/or in the supervision and teaching of others who are or will be involved in nursing care; and/or the administration of medications and treatments as prescribed by a licensed physician or dentist. Nursing by registered nurse requires specialized knowledge, judgment, and skill, but does not require nor permit medical diagnosis or medical prescription of therapeutic or corrective measures. The use of skill and judgment is based upon an understanding of principles from the biological, social, and physical sciences. Nursing by registered nurse requires use of skills in modifying methods of nursing care and supervision as the patient's needs change. North Carolina Gen. Stat., § 90–158(3) (Supp. 1965).
North Dakota	Model definition. North Dakota Cent. Code, § 43–12–01 (Supp. 1965).
Ohio	A registered nurse is one who has been authorized by the State to perform any professional service requiring the application of principles of nursing based on biological, physical, and social sciences, such as responsible supervision of a patient requiring skill in observation of symptoms and reactions and the accurate recording of same, and execution of treatments and medications as prescribed by a licensed physician, and the application of such nursing procedures as involve understanding of cause and effect in order to safeguard life and health, and the instruction, supervision of nurses, and the administration of nursing services in institutions and health agencies. Ohio Rev. Code, § 4723.06 (1965).

Practice of professional nursing as defined in State nursing practice acts—Continued

State—Continued	
Oklahoma	The term "registered nurse" when used in this act shall mean any person, licensed and registered, who practices professional nursing and who for compensation or personal profit performs any such professional service that requires the application of principles of the biological, physical or social sciences and nursing skills in the care of the sick, in the prevention of disease, in the conservation of health, or in the practice of professional nursing. Oklahoma Stat., title 59, § 567.3 (1961).
Oregon	The practice of professional nursing is the performance for compensation of any act, requiring substantial specialized judgment and skill and based on knowledge and application of the principles of biological, physical and social sciences, in the observation, care and counsel of the ill, injured or infirm, or in the maintenance of health or prevention of illness of others, or in the supervision and teaching of principles and techniques of nursing to other personnel involved in the nursing care of patients, or the administration of medications and treatments, whether the piercing of tissues is involved or not, as prescribed by a person authorized to practice medicine or surgery, osteopathy or dentistry in Oregon. This section does not authorize a licensed professional nurse to perform acts of diagnosis or prescription of therapeutic or corrective measures. Oregon Rev. Stat., §678.015 (Supp. 1965–66).
Pennsylvania	A person engages in the "Practice of Professional Nursing," within the meaning of this act, who performs any professional service requiring the application of principles of the biological, physical or social sciences and nursing skills in the care of the sick, in the prevention of disease, or in the conservation of health. Pennsylvania Stat., title 63, §212(1) (1959).
Rhode Island	A person practices professional nursing, who for compensation or personal profit performs professional services requiring the application of the principles of nursing based on biological, physical, and social sciences, and nursing skills in the observation of symptoms, reactions, and accurate recording of facts, and carrying out of treatments and medications prescribed by licensed physicians in the care of the sick, in the prevention of disease or in the conservation of health. Rhode Island Gen Laws, §5–34–1(1) (1956).

Practice of professional nursing as defined in State nursing practice acts—Continued

State—Continued	
South Carolina	Definition of "registered nurse." Any person shall be regarded as a "registered nurse," within the meaning of this chapter, who has graduated from an accredited school of nursing, as provided in this chapter, has passed a satisfactory examination before the State Board of Nursing, hereinafter referred to as the Board, and has complied with all other requirements of this chapter. South Carolina Code, §56–951 (1952). Model definition used in Rules and Regulations of South Carolina, reg. 5.1.
South Dakota	"The practice of professional nursing" means the performance for compensation of such acts within the field of nursing as require substantial specialized skill, knowledge or training, or knowledge and application of the principles of physical, biological, or social science, or the supervision of less skilled nursing service workers. South Dakota Session Laws 1955, ch. 91, p. 183, § 2(3).
Tennessee	"The practice of professional nursing" is defined as the performance of any service: (a) Rendered pursuant to a consensual agreement. (b) Requiring the application of the principles based upon the biologic, physical, and social sciences in the supervision of a patient involving: 1. The observation of symptoms and reactions; 2. The accurate recordation of facts; 3. The fulfillment of legal orders of a duly licensed physician concerning treatments and medications with an understanding of cause and effect; 4. The accurate application of procedures and techniques with an understanding of cause and effect; and (c) The additional safeguarding of the physical and mental care of the patient by the employment of any remedial means, including but not limiting, the health direction and education of the patient. Tennessee Code, § 63–711 (1956).
Texas	Practice not defined by statute.
Utah	Model definition. Utah Code, § 58–31–4 (Supp. 1965).

Practice of professional nursing as defined in State nursing practice acts—Continued

State—Continued	
Vermont	"The practice of professional nursing" means the performance for compensation of services which necessitate the specialized knowledge, judgment and skill based upon the principles of biological, physical and social sciences required for the performance of nursing in the: a. Supervision of a patient including the observation of symptoms and reactions and the accurate recording of facts; b. Implementation of medical orders as prescribed by a licensed physician or licensed dentist. The foregoing shall not be deemed to include diagnosis of illness or the prescribing of therapeutic or corrective measures; c. Application of such nursing measures as involve understanding of cause and effect in order to safeguard life and health of the patient; d. Direction and education to secure physical and mental care and to maintain health or prevent illness of others; and e. Supervision and teaching of personnel contributing to nursing care. Vermont Stat., title 26, ch. 1552(2) (Supp. 1965).
Virginia	The term "practice of professional nursing" means the performance of any professional service requiring the application of the principles of nursing based on biological, physical and social sciences, such as responsible supervision of a patient requiring skill in observation of symptoms and reactions and the accurate recording of the facts and carrying out of treatment and medications as prescribed by a licensed physician, and the application of such nursing procedures as involve understanding of cause and effect in order to safeguard life and health of a patient and others. Virginia Code, § 54–326(2) (1967).
Washington	Model definition. Washington Rev. Code, § 18.88–030 (Supp. 1963).

Practice of professional nursing as defined in State nursing practice acts—Continued

State—Continued	
West Virginia	The practice of "registered professional nursing" shall mean the performance for compensation of any service requiring substantial specialized judgment and skill based on knowledge and application of principles of nursing derived from the biological, physical and social sciences, such as responsible supervision of a patient requiring skill in observation of symptoms and reactions and the accurate recording of the facts, or the supervision and teaching of other persons with respect to such principles of nursing, or in the administration of medications and treatments as prescribed by a licensed physician or a licensed dentist, or the application of such nursing procedures as involved understanding of cause and effect in order to safeguard life and health of a patient and others. West Virginia Code, § 30–7–1(b) (1966).
Wisconsin	The practice of professional nursing within the terms of this chapter means the performance for compensation of any act in the observation or care of the ill, injured or infirm, or for the maintenance of health or prevention of illness of others, which act requires substantial nursing skill, knowledge or training, or application of nursing principles based on biological, physical and social sciences, such as the supervision of a patient, the observation and recording of symptoms and reactions, the execution of procedures and techniques in the treatment of the sick under the general or special supervision or direction of a physician, the execution of general nursing procedures and techniques and the supervision and direction of trained practical nurses and less skilled assistants. Wisconsin Stat., § 149.10 (1965).
Wyoming	The practice of professional nursing means the performance for compensation of any act in the care of the ill or injured, or administration of medications and performance of treatments as prescribed by a licensed physician or dentist, or in the prevention of disease of others, requiring substantial specialized skill, training or knowledge and application of the principles of physical, biological and social science, or supervision of less skilled workers in the field. Wyoming Stat., § 33–280(a) (1957).

Appendix 11

Statutory provisions governing accreditation of professional nursing schools

State	Board approves schools	Approval by State Education, Department	Accreditation by administrative regulation	Hospital relationship required	Financial facts	Physical plant	Library	Basis for promotion and graduation	Faculty	Curriculum (duration or courses)	Survey or site visit	Reliance on national body
Alabama	X	......	X	X	......	......	....	......	X	X	......	
Alaska	X	......	X	......	......	......	....	......	....	....	X	
Arizona	X	......	X	......	......	......	....	......	....	....	......	
Arkansas	X	......	X	......	......	......	....	......	....	....	......	
California	X	......	X	X	......	......	....	X	X	X	X	NLN and AAJC.
Colorado	X	......	X	......	......	......	....	......	....	X	X	
Connecticut	X	......	X	X	......	......	....	......	X	X	X	
Delaware	X	......	X	......	......	......	....	......	....	X	X	
District of Columbia	X	......	X	X	......	......	....	......	....	X	......	
Florida	X	......	X	......	......	......	....	......	....	X	X	
Georgia	....	X	X	X	......	......	....	......	....	X	......	
Hawaii	X	......	X	......	......	......	....	......	....	....	X	

Statutory provisions governing accreditation of professional nursing schools—Continued

State	Board approves schools	Approval by State Education, Department	Accreditation by administrative regulation	Hospital relationship required	Financial facts	Physical plant	Library	Basis for promotion and graduation	Faculty	Curriculum (duration or courses)	Survey or site visit	Reliance on national body
Idaho	X	......	X	......	......	......	....	......	....	....	X	
Illinois	X	......	X	......	......	......	....	......	....	X	X	
Indiana	X	......	X	X	......	......	....	......	....	....	X	
Iowa	X	......	X	X	......	......	....	......	....	X	......	
Kansas	X	......	X	......	......	......	....	......	....	....	X	
Kentucky	X	......	X	......	......	......	....	......	....	....	X	
Louisiana	X	......	X	......	......	......	....	......	....	X	X	
Maine	X	......	X	......	......	......	....	......	....	X	X	
Maryland	....	X	X	......	......	......	....	......	....	....	......	
Massachusetts	X	......	X	......	......	......	....	......	....	....	X	
Michigan	X	......	X	X	......	X	....	......	X	X	X	
Minnesota	X	......	X	X	......	......	....	......	....	X	X	
Mississippi	....	X	X	......	......	......	....	......	....	....	......	
Missouri	X	......	X	......	......	......	....	......	....	....	X	
Montana	X	......	X	......	......	......	....	......	....	....	X	
Nebraska	X	......	X	......	......	......	....	......	....	....	X	

Nevada	X	......	X	......	......	X	....	......	....	X	X	NLN and AAJC.
New Hampshire	X	......	X	......	......	......	....	......	....	....	......	
New Jersey	X	......	X	X	......	......	....	......	X	....	......	
New Mexico	X	......	X	......	......	......	....	......	....	....	X	
New York	X	......	X	......	......	......	....	......	....	....	X	
North Carolina	X	......	X	X	X	X	X	X	X	X	X	
North Dakota	X	......	X	......	......	......	....	......	....	....	X	
Ohio	X	......	X	......	......	......	....	......	....	....	X	
Oklahoma	X	......	X	X	......	......	....	X	....	X	X	
Oregon	X	......	X	......	......	......	....	......	....	....	X	
Pennsylvania	X	......	X	......	......	......	....	......	....	X	......	
Rhode Island	X	......	X	......	......	......	....	......	....	X	X	
South Carolina	X	......	X	......	......	......	....	......	....	....	X	
South Dakota	X	......	X	X	......	......	....	......	X	X	X	
Tennessee	X	......	X	......	......	......	....	......	....	....	X	
Texas	X	......	X	......	......	......	....	......	....	X	X	
Utah	X	......	X	......	......	......	....	......	....	....	X	
Vermont	X	......	X	......	......	......	....	......	....	....	X	
Virginia	X	......	X	......	......	......	....	......	....	....	X	
Washington	X	......	X	......	......	......	....	......	....	....	X	
West Virginia	X	......	X	......	......	......	....	......	....	....	X	
Wisconsin	X	......	X	X	......	......	....	......	....	....	X	
Wyoming	X	......	X	X	......	......	....	......	....	....	X	

Appendix 12

Practice of practical nursing as defined in State nursing practice acts

A.N.A. model definition....	The term "practical nursing" means the performance, for compensation, of selected acts in the care of the ill, injured or infirm under the direction of a licensed professional nurse or a licensed physician or a licensed dentist; and not requiring the substantial specialized skill, judgment and knowledge required in professional nursing.
State	
Alabama.................	Model definition. Alabama Code, title 46, § 189(34) (Supp. 1965).
Alaska.....................	Model definition. Alaska Comp. Law, § 35-3-124(6) (Supp. 1957).
Arizona...................	"Practical nursing" means the performance for compensation or profit of services requiring technical skills acquired by means of a course in an accredited school of practical nursing or its equivalent, performed under the direction of a person licensed in this state to practice healing as defined in section 32-401, or a professional nurse, requiring a knowledge of nursing procedures but not requiring the professional knowledge and skill required for professional nursing. Arizona Rev. Stat., § 32-1601(4) (Supp. 1966).
Arkansas..................	A person practices nursing within the meaning of this Act who for compensation or personal profit * * * (b) performs such duties as are required in the physical care of a patient and in carrying out medical orders as prescribed by a licensed physician, requiring an understanding of nursing but not requiring the professional service outlined in (*a*). Arkansas Stat., § 72-715 (1957).
California.................	The practice of vocational nursing within the meaning of this chapter is the performance of services requiring those technical, manual skills acquired by means of a course in an accredited school of vocational nursing, or its equivalent practiced under the direction of a licensed physician, or registered professional nurse * * *. A vocational nurse, within the meaning of this chapter, is a person who has met all the legal requirements for a license as a vocational nurse in this State and who for compensation or personal profit engages in vocational nursing as the same as hereinabove defined. California Bus. and Prof. Code, § 2859.

Practice of practical nursing as defined in State nursing practice acts—Con.

State—Continued	
Colorado	Model definition. Colorado Rev. Stat., § 97–2–3 (1963).
Connecticut	The practice of nursing is defined as follows: * * * (*b*) The performing, for compensation and under the direction of a licensed physician of any of the simpler procedures required in nursing care of the sick, not involving the specialized education, knowledge and skill specified in subdivision (*a*) (for professional nursing). Connecticut Gen. Stat., § 20–87 (1958).
Delaware	Model definition. Delaware Code, title 24, § 1901 (Supp. 1966).
District of Columbia	Practice not defined by statute.
Florida	Substantially similar to the model definition. Florida Stat., § 464.021(3) (1965).
Georgia	A practical nurse is a person who has had study and supervised experience in an approved school and hospital training program and is thereby trained to care for subacute, convalescent and chronic patients in their own homes or in institutions, or who works under the direction of a licensed physician or registered professional nurse. Georgia Code, § 84–1028 (1955).
Hawaii	Model definition. Hawaii Rev. Laws, § 67–2(c) (Supp. 1963).
Idaho	Model definition. Idaho Code, § 54–1413 (Supp. 1965).
Illinois	Substantially similar to the model definition. Illinois Rev. Stat., ch. 91, § 35.35(3) (Smith-Hurd 1966).
Indiana	For the purpose of this act the phrase "practice of nursing" shall mean and refer to any person who for compensation or personal profit * * * (b) As a licensed practical nurse performs such duties as are required in the physical care of a convalescent, a chronically ill or an aged or infirm patient and in carrying out of medical orders as prescribed by a licensed physician, requiring a knowledge of simple nursing procedures but not requiring the professional knowledge and skills required for professional nursing. Indiana Stat., § 63–901 (1961).
Iowa	For the purpose of this title the practice of nursing as a licensed practical nurse shall mean performance of such duties as are required in the physical care of a convalescent, a chronically ill or an aged or infirm patient, and in carrying out such medical orders as are prescribed under the supervision of a registered nurse, requiring the knowledge of simple nursing procedures but not requiring the professional knowledge and skills of a registered nurse. Iowa Code, § 152.1 (1962).

Practice of practical nursing as defined in State nursing practice acts—Con.

State—Continued	
Kansas	Model definition. Kansas Gen. Stat., § 65–1113(b)(2) (1964).
Kentucky	Substantially similar to the model definition. Kentucky Rev. Stat., § 314.011(4) (Supp. 1966).
Louisiana	"Practical nursing" means the performance of nursing services for patients if while performing these services the nurse is at all times under the direction and supervision of a licensed physician or registered nurse acting under the supervision of a licensed physician. Louisiana Rev. Stat., § 37–961 (1950).
Maine	Substantially similar to the model definition. Maine Rev. Stat., ch. 69–A, § 2 (Supp. 1961).
Maryland	Practice not defined by statute.
Massachusetts	"Practical nursing" shall mean the performance for compensation of any of those services in observing and caring for the ill, injured or infirm, in applying counsel and procedures to safeguard life and health, in administering treatment or medication prescribed by a physician or dentist, or in teaching or supervising others, which are commonly performed by licensed practical nurses and which require specialized knowledge and skill such as are taught and acquired under the established curriculum in a school for practical nurses duly approved in accordance with this chapter Massachusetts Gen. Laws, ch. 112, § 80B (1965).
Michigan	Unless otherwise provided in this act, the term "licensed practical nurse" is defined as one who has been authorized by the state to perform such duties as are required in the physical care of a patient and in carrying out of medical orders as prescribed by a licensed physician, requiring an understanding of nursing but not requiring the professional service as defined above. The term "licensed practical nurse" is further defined as one who is authorized by the state to care for subacute, convalescent and chronic patients requiring service under public health nursing agencies, or in institutions, or in homes, working under the direction of a licensed physician or the supervision of a registered professional nurse, or one who is authorized by the state to assist a registered professional nurse as a member of a team caring for acutely ill patients, and who is prepared to give household assistance when it contributes directly to the welfare of the patient. Michigan Comp. Laws, § 338.360 (1948).

Practice of practical nursing as defined in State nursing practice acts—Con.

State—Continued	
Minnesota................	"The practice of nursing by a Licensed Practical Nurse" means "the performing for compensation or personal profit, services required in the nursing care of the sick, not involving the specialized education, knowledge and skill required in professional nursing." Minnesota Stat., 148.29 (1957).
Mississippi................	A Practical Nurse is a person trained to care for selected, convalescent and subacutely or chronically ill patients. He or she may be expected to assist the professional nurse in a team relationship to provide nursing service in hospitals, in other institutions, and in private homes, to give limited household assistance when necessary; and may be employed by a physician, a private individual, a hospital, or a health agency. A practical nurse works only under the direct orders of a licensed physician or the supervision of a registered professional nurse. A licensed practical nurse is defined as a person to whom a license is issued by the State Board of Nurses' Examiners to practice as a licensed practical nurse in this State. Mississippi Code, § 8817(b) (1942).
Missouri..................	A person practices as a licensed practical nurse who desires to and does comply with the licensing provisions of this chapter; and who for compensation or personal profit performs such duties as are required in the care of the sick, convalescent, chronically ill or aged or infirm patients and in carrying out such medical orders as may be prescribed by a practitioner authorized to sign birth and death certificates or under the supervision of a registered professional nurse requiring knowledge of nursing procedures but not requiring the professional knowledge and skills required of the professional nurse, and who is licensed under this chapter. Missouri Rev. Stat., § 335.010 (1966).
Montana.................	Substantially similar to the model definition. Montana Rev. Code Ann., § 66-1222(2) (Supp. 1967).
Nebraska.................	Practice of practical nursing shall mean the performance of services and nursing skills in the care of the sick, in the prevention of disease, or in the conservation of health, not involving the specialized education, knowledge, and skill required in professional nursing. Nebraska Rev. Stat., § 71-1,132.06 (1966).
Nevada...................	Model definition. Nevada Rev. Stat., § 632.010 (1957).

Practice of practical nursing as defined in State nursing practice acts—Con.

State—Continued	
New Hampshire	"Practical nursing" means the performance for compensation of those services in observing and caring for the ill, injured or infirm, in administering treatment or medication or in applying counsel and procedures to safeguard life and health as prescribed by, or under the supervision of a physician, dentist, or registered professional nurse, and which require specialized knowledge and skill as are taught and acquired under the curriculum of an accredited school for practical nurses, but not requiring the substantial special skill, judgment, and knowledge required of registered professional nurses. New Hampshire Rev. Stat. § 326:17 (1961).
New Jersey	"Practical nursing" is the performance for compensation of such duties as are required in the care of a patient in carrying out of medical orders prescribed by a licensed physician, requiring an understanding of elementary nursing but not requiring the professional service outlined in the definition of professional nursing. New Jersey Stat. Ann., § 45:11–23(b) (1963).
New Mexico	"Practical nursing" means the performance for compensation or personal profit of such services as are required (1) in the care of a convalescent, a chronically ill or an aged or infirm patient or in carrying out such medical orders as prescribed by a licensed physician requiring a knowledge of simple nursing procedures but not requiring the professional knowledge and skill required for professional nursing and (2) in assisting the professional nurse in the care of those more acutely ill. New Mexico Stat. Ann., § 67–6–3 (1953).
New York	A person practices as a licensed practical nurse within the meaning of this article who for compensation or personal profit performs such duties as are required in the physical care of a patient and in carrying out of medical orders as prescribed by a licensed physician or by a licensed dentist requiring an understanding of nursing but not requiring the professional service as outlined in paragraph (a) (for registered professional nurses). New York Educ. Law, § 6901(2)(b) (1953).

Practice of practical nursing as defined in State nursing practice acts—Con.

State—Continued	
North Carolina	Nursing by Licensed Practical Nurse: The practice of practical nursing means the performance for compensation of selected acts in the care of persons who are ill, injured, or experiencing alterations in normal health processes. Such performance requires a knowledge of and skill in simple nursing procedures, gained through prescribed preparation, but does not require the specialized knowledge, judgment, and skill essential for nursing by a registered nurse. Practical nursing is performed under orders of a licensed physician or a licensed dentist, and/or under directions issued by a registered nurse. North Carolina Gen. Stat., § 90–158(3) (Supp. 1965).
North Dakota	Model definition. North Dakota Cent. Code, § 43–21–01 (Supp. 1965).
Ohio	A licensed practical nurse is a person licensed by law to perform nursing services in the care of the sick, in rehabilitation and in prevention of illness under the supervision of a licensed physician or a registered nurse. Ohio Rev. Code, § 472.15 (1965).
Oklahoma	The term "licensed practical nurse" when used in this act shall mean a person trained to care for selected subacute convalescent and chronic patients, and to assist the professional nurse in a team relationship, especially in the care of those more acutely ill. She may be employed by the lay public, hospitals and agencies. A licensed practical nurse works only under the direct orders of a licensed physician or the supervision of a registered nurse. Oklahoma Stat., title 59, § 567.3(b) (1961).
Oregon	"Practical nursing" means the performing by any person, for compensation or personal profit, services in the nursing or care of the sick, not requiring specialized education, knowledge or skill equivalent to that of a graduate or registered nurse. Oregon Rev. Stat., § 678.210 (Supp. 1965–66).
Pennsylvania	Model definition. Pennsylvania Stat., title 63, §652 (Supp. 1966).
Rhode Island	A person practices practical nursing, who for compensation or personal profit, performs such duties as are required in the nursing care of subacute, convalescent or chronic patients, and in assisting the professional nurse in a team relationship, especially in the care of the more acutely ill and in carrying out such medical orders as prescribed by a licensed physician, requiring a knowledge of simple nursing procedures but not requiring the knowledge and skills required for professional nursing. Rhode Island Gen. Laws, §34–1(2) (1956).

Practice of practical nursing as defined in State nursing practice acts—Con.

State—Continued	
South Carolina	Definition of "licensed practical nurse." Any person shall be regarded as a "licensed practical nurse," within the meaning of this chapter, who has successfully completed an accredited course for the training of practical nurses, as provided in this chapter, has completed a satisfactory examination before the Board and has complied with all other requirements of this chapter. South Carolina Code, §56–951 (1952). Model definition used in Rules and Regulations of South Carolina, reg. 5.2.
South Dakota	"The practice of practical nursing" means the performance for compensation of any acts within the field of nursing that do not require the degree of skill, knowledge or training involved in professional nursing. South Dakota Session Laws, 1955, ch. 91, p. 84, §2 (3).
Tennessee	The practice of practical nursing is defined as a performance of a service which is required in the physical care of a convalescent, a chronically ill or an aged or infirm patient, and in carrying out such medical orders as prescribed by a licensed physician requiring a knowledge of simple nursing procedures, but not requiring the professional knowledge and skills required for professional nursing and to assist the professional nurse in a team relationship, especially in the care of those who are more acutely ill. Tennessee Code, §67–716 (1956).
Texas	The term "Licensed Vocational Nurse" as used in this act, shall mean any person who directly attends or cares for the sick for compensation or hire, and whose personal qualifications, preliminary education or nursing education in biological, physical and social sciences will not qualify that person to become certified as a professional registered nurse, as defined and regulated under the laws of this State, and who uses the designation Licensed Vocational Nurse, or the abbreviation L.V.N. Texas Rev. Civ. Stat., art. 4528, §1 (1960).
Utah	Model definition. Utah Code, § 58–31–6 (1953).
Vermont	Model definition. Vermont Stat., title 26, ch. 1552(5) (Supp. 1965).
Virginia	The term "registered practical nurse" means any person licensed as such by the Board to perform such duties as are required in the physical care of a patient, and the carrying out of medical orders and directions given by a licensed physician which require an understanding of practical nursing procedures but not the technical understanding necessary for professional service. Virginia Code, § 54–326(6) (1957).

Practice of practical nursing as defined in State nursing practice acts—Con.

State—Continued	
Washington..............	"Licensed practical nurse practice" shall mean "the performing for compensation or personal profit, services required in the nursing care of the ill, injured or infirm, under the direction of a licensed physician and surgeon, osteopathic physician and surgeon, or dentist or under the supervision of a registered nurse and not involving specialized education, knowledge, skill and exercise of independent judgment required in professional nursing." Washington Rev. Code, § 18.78.010 (Supp. 1963).
West Virginia............	The term "practical nurse", as used in this article, shall mean a person prepared by an approved educational program to share in the care of the sick, in rehabilitation and in prevention of illness, always under the supervision of a licensed physician. West Virginia Code, § 30-7A-1(a) (1966).
Wisconsin................	The practice of practical nursing within the terms of this chapter means the performance of any simple acts in the care of convalescent, subacutely or chronically ill, injured or infirm persons, or of any act or procedure in the care of the more acutely ill, injured or infirm under the specific direction of a nurse or physician. A simple act is one which does not require any substantial nursing skill, knowledge, or training, or the application of nursing principles based on biological, physical or social sciences, or the understanding of cause and effect in such acts and in one which is of a nature of those approved by the board for the curriculum of schools for trained practical nurses. Wisconsin Stat., § 149.10 (1965).
Wyoming................	The practice of practical nursing means the performance for compensation of any act in the care of the ill, injured, infirm, or in the prevention of disease, and in carrying out medical orders as prescribed by a licensed physician or dentist, requiring a knowledge of simple nursing procedures but not requiring the degree of specialized skill essential for professional nursing, and to giving assistance to the professional nurse in the care of the ill, injured or infirm. Provided, however, they shall not administer narcotics, and shall only administer simple oral medication except under the direction of a Registered Nurse, doctor or dentist. Wyoming Stat., § 33-280(b) (1957).

Appendix 13

Statement of Functions of the Licensed Practical Nurse

This statement, which is an elaboration of the one adopted in 1957, was approved by the Executive Board of the National Federation of Licensed Practical Nurses in October 1963, and by the Board of Directors of the American Nurses' Association in January 1964.

Purpose

This statement is intended to serve as a guide to:

1. The utilization of the licensed practical nurse in nursing services.
2. Self-evaluation of practice by the licensed practical nurse.
3. Development and evaluation of educational standards in the preparation of the licensed practical nurse.
4. Interpretation of licensing legislation.

Education and Licensure

The LPN should be prepared and qualified for nursing practice by:

1. Education
   - a. Preservice preparation in a program in practical nursing approved by the State board of nursing.
   - b. Orientation and continuing inservice education.
   - c. Instruction, within the scope of practical nursing, of the practitioner who qualifies for further training in specialized fields peculiar to the agency.
2. Licensure by State board of nursing.

Personal Qualifications

Personal and vocational growth and development should be sustained by:

1. Maintenance of good health practices.
2. Active participation in and the promotion of nursing organi-

zations; inservice education programs; workshops; institutes; other educational and community activities.

Role Description

The work of the LPN is an integral part of nursing. The licensed practical nurse gives nursing care under the supervision of the registered professional nurse or physician to patients in simple nursing situations. In more complex situations the licensed practical nurse functions as an assistant to the registered professional nurse.

A simple nursing situation is one that is relatively free of scientific complexity. In a simple nursing situation the clinical state of the patient is relatively stable and the measures of care offered by the physician require abilities based on a comparatively fixed and limited body of scientific facts and can be performed by following a defined procedure step by step. Measures of medical and personal care are not subject to continuously changing and complex modifications because of the clinical or behavioral state of the patient. The nursing that the patient requires is primarily of a physical character and not instructional.

In more complex situations, the licensed practical nurse facilitates patient care by meeting specific nursing requirements of patients as directed, such as preparing equipment, supplies and facilities for patient care, helping the professional nurse to perform nursing measures, and communicating significant observations to the registered professional nurse.

Legal Status

The legal responsibility of the LPN extends to two areas:

1. Licensure to practice practical nursing according to State law.
2. Performance limited to those acts for which he or she has been prepared.

Although it is true that the LPN's responsibility extends to these two areas, bearing in mind the individual's personal responsibility under the law, it is equally true that the professional nurse has ultimate responsibility for nursing service, including the responsibility for assignment of all nursing personnel.

Functions

The selection of the functions or the specific procedures to be performed by the LPN depends upon a realistic appraisal of the elements within the situations, such as the complexity of scientific principles underlying the procedure or function; the ability and skills the LPN has acquired and demonstrated; the amount and character of the supervision required by the LPN to perform the functions; and the patients' needs and the ability of the LPN to provide safe nursing care to meet those needs.

In this context, the LPN performs the following functions:

A. Participates in the planning, implementation, and evaluation of nursing care in complex situations, and in giving nursing care in simple nursing situations by:
  1. Providing for the emotional and physical comfort and safety of patients through:
    a. Understanding of human relationships between and among patients, families, and personnel.
    b. Recognizing and understanding cultural backgrounds, spiritual needs; respecting the religious beliefs of individual patients.
    c. Recognizing and understanding the effects of social and economic problems upon patients.
    d. Protecting patients from behavior that would damage their self-esteem or relationship with families, other patients, or personnel.
    e. Participating in the development, revision, and implementation of policies and procedures designed to insure comfort and safety of patients and personnel.
    f. Assisting the patient with activities of daily living and encouraging appropriate self-care.
    g. Considering needs of the patient for an attractive, comfortable and safe environment.

For effective practice the LPN must know and utilize fundamental principles of human behavior and have an appreciation of the effects of stress upon individuals and groups.

A practical understanding of human growth and behavior makes it possible to note signs of change or disturbance in the patient's activity patterns. These may relate to illness, to individual responses to the institutional environment, and to personnel.

Representation and participation on committees and in conferences relevant to personnel and nursing care utilizes staff resources to develop a mutual understanding of the individual's role and responsibility in nursing service, e.g. a Committee on Infection Control.

A. 2. Observing, recording, and reporting to the appropriate person:
    a. General physical and mental condition of patients, signs and symptoms which may be indicative of change.
    b. Stresses in human relationships between patients and patients' families, visitors, and personnel.
  3. Performing nursing procedures for which the preparation of the LPN has provided the necessary degree of skill and judgment, such as:
    a. Administration of medications and treatments prescribed for the patient.
    b. Preparation and care of patients receiving specialized treatments.
    c. Performance of special nursing techniques in caring for patients with communicable diseases.
    d. Practice of first-aid measures.
    e. Preparation and aftercare of equipment for treatments, including sterilization and observation of aseptic techniques.
  4. Assisting with the rehabilitation of patients according to the patient care plan through:
    a. Awareness of and encouraging the interests and special aptitudes of patients.
    b. Encouraging patients to help themselves within their own capabilities in performing activities of daily living.
    c. Knowledge and application of the principles of prevention of deformities; the normal range of motion; body mechanics and body alinement.
    d. Utilizing the community resources and facilities for continuing patient care.

B. Promoting effectiveness of the employing health service agency through:
  1. Utilizing opportunities in contacts with patients' relatives to promote better understanding of policies pertaining to the health service.
  2. Fostering cooperative effort through understanding the functions of all personnel involved in patient care.
  3. Utilizing community resources and relationships for better understanding by the public of health services.

Appendix 14

Statutory provisions governing accreditation of practical nursing schools

State	Board approves schools, by administrative regulation	Minimum standards set by statute								
		Hospital relationship required	Financial facts	Physical plant	Library	Basis for promotion and graduation	Faculty	Curriculum (duration or courses)	Survey or site visit	Reliance on national body
Alabama	X	....	....	....	....	....	....	....	....	
Alaska	X	....	....	....	....	....	....	....	X	
Arizona	X	....	....	....	....	....	....	....	....	
Arkansas	X	....	....	....	....	....	....	....	....	
California	X	X	....	....	....	X	X	X	X	
Colorado	X	....	....	....	....	....	....	X	X	
Connecticut	X	....	....	....	....	....	X	X	X	
Delaware	X	....	....	....	....	....	....	X	X	
District of Columbia	X	....	....	....	....	....	....	X	X	
Florida	X	....	....	....	....	....	....	X	X	
Georgia	X	X	....	X	....	....	....	X	....	
Hawaii	X	....	....	....	....	....	....	....	X	
Idaho	X	....	....	....	....	....	....	....	X	
Illinois	X	....	....	....	....	....	....	X	X	
Indiana	X	....	....	....	....	....	....	X	X	
Iowa	X	....	....	....	....	....	....	X	....	

Kansas	X	....	....	....	....	....	....	....	X
Kentucky	X	....	....	....	....	....	....	....	X
Louisiana	X	....	....	....	....	....	....	....	X
Maine	X	....	....	....	....	....	....	X	X
Maryland	X	....	....	....	....	....	....	....	....
Massachusetts	X	....	....	....	....	....	....	....	X
Michigan	X	X	....	X	....	....	X	X	X
Minnesota	X	....	....	....	....	....	....	X	X
Mississippi	(1)	....	....	....	....	....	....	....	....
Missouri	X	....	....	....	....	....	....	....	X
Montana	X	....	....	....	....	....	....	....	X
Nebraska	X	....	....	....	....	....	....	....	X
Nevada	X	....	....	....	....	....	....	....	X
New Hampshire	X	....	....	....	....	....	....	....	....
New Jersey	X	....	....	....	....	....	....	....	....
Mew Mexico	X	....	....	....	....	....	....	....	X
New York	X	....	....	....	....	....	....	X	X
North Carolina	X	X	X	X	X	X	X	X	X
North Dakota	X	....	....	....	....	....	....	X	X
Ohio	X	....	....	....	....	....	....	....	X
Oklahoma	X	X	....	....	....	X	....	X	X
Oregon	X	....	....	X	....	....	X	X	X
Pennsylvania	X	....	....	....	....	....	....	X	....
Rhode Island	X	....	....	....	....	....	....	X	X

See footnote at end of table.

Statutory provisions governing accreditation of practical nursing schools—Continued

State	Board approves schools, by administrative regulation	Minimum standards set by statute								
		Hospital relationship required	Financial facts	Physical plant	Library	Basis for promotion and graduation	Faculty	Curriculum (duration or courses)	Survey or site visit	Reliance on national body
South Carolina	X	....	....	....	....	....	....	....	....	
South Dakota	X	....	....	....	....	....	X	X	X	X[2]
Tennessee	X	....	....	....	....	....	....	....	X	
Texas	X	X	....	....	....	....	X	X	X	
Utah	X	....	....	....	....	....	....	....	X	
Vermont	X	....	....	....	....	....	....	....	X	
Virginia	X	....	....	....	....	....	....	X	X	
Washington	X	....	....	....	....	....	....	X	X	
West Virginia	X	....	....	....	....	....	....	....	X	
Wisconsin	X	X	....	....	....	....	....	X	X	
Wyoming	....	....	....	....	....	....	....	....	X	

[1] Department of Education.

[2] National Association for Practical Nursing Education.

Appendix 15A

Nurse-Midwife Regulations for New Mexico

Authorizing Act, Chapter 39, Laws of 1937

SECTION I. DEFINITION OF NURSE-MIDWIFERY: The practice of nurse-midwifery shall be construed to mean the management in the prenatal, delivery, or postnatal period of a parturient woman by a registered nurse who has qualified as a nurse-midwife under section II.

SEC. II. PROFESSIONAL AND PHYSICAL REQUIREMENTS FOR NURSE-MIDWIVES: A nurse-midwife must be a graduate nurse registered or eligible for registration in New Mexico, who has successfully completed a course of training in midwifery at a School of Midwifery recognized as satisfactory according to the standards of the American College of Nurse-Midwifery, and who meets the physical requirements set up by the New Mexico State Department of Public Health.

SEC. III. PROCEDURE FOR LICENSURE AND REGISTRATION: A nurse-midwife seeking a permit to practice must make application and present her credentials and evidence of physical fitness to the Director of the New Mexico State Department of Public Health. Evidence of the right to practice midwifery will be issued on order of the State Department of Public Health to qualifying applicants. Appropriate permits of registration will be issued. For those in active practice a yearly renewal of licensure is required.

SEC. IV. RULES GOVERNING THE CONDUCT OF THE NURSE-MIDWIFE: The nurse-midwife shall accept for care only presumably normal patients who have received adequate prenatal examination by a licensed physician with a knowledge of obstetrics deemed adequate by the Director of the State Department of Public Health. The nurse-midwife will comply with all standing orders issued by the State Department of Public Health. Any and all such orders are to be kept on file in the offices of the State Department of Public Health and made available to all approved candidates. When revised, they will be sent to all those who have been given a permit to practice.

SEC. V. GROUNDS AND PROCEDURE FOR REFUSAL TO GRANT, OR REVOCATION OF CERTIFICATE OF LICENSURE: The State Department of Public Health may refuse to grant, or may revoke, a permit to a person unable to meet the physical requirements for nurse-midwifery, or one guilty of gross incompetence, dishonesty, immorality, or unprofessional conduct, after due consideration of pertinent evidence, or upon hearing demanded by the individual concerned.

ENABLING CLAUSE: Upon acceptance of these Regulations by the State Board of Public Health and their promulgation by the State Board of Public Health the enforcement of these regulations may be delegated to the Director of the State Department of Public Health.

Appendix 15B

Department of Health Amendment to New York City Health Code

At a meeting of the Board of Health of the Department of Health held February 8, 1966, the following resolution was adopted:

Resolved, That subsection (c) of section 43.03 of the New York City Health Code, as enacted by resolution adopted on the twenty-third day of March, nineteen hundred fifty-nine and filed with the city clerk on the twenty-fourth day of March, nineteen hundred fifty-nine, be and the same hereby is amended, to be printed together with explanatory notes, to read as follows:

(c) A permit to practice as a nurse midwife shall not be issued unless:

(1) The applicant is a registered professional nurse who is registered with the State Department of Education pursuant to Article 139 of the Education Law;

(2) The applicant a) was graduated within two years prior to the date of application from a school for nurse midwives recognized by the American College of Nurse Midwifery and approved by the Commissioner, or b) held a permit under this section within two years prior to the date of application, or c) presents evidence of satisfactory completion within two years prior to the date of application of a refresher course in nurse midwifery prescribed by the American College of Nurse Midwifery and approved by the Commissioner;

(3) The applicant is associated with and will function exclusively as part of a staff of a maternity and newborn service or maternity clinic approved by the Department, and will carry on her activities under the continuous supervision of a qualified obstetrician as defined in section 41:43(b).

NOTES.—Subsection (c) provides for a new type of permit, that is, to practice as a nurse midwife. Subdivisions (1) and (3) are new. Subdivision (2) is derived in part from S.C. § 196 Reg. 2(d) and from S.C. § 196 Reg. 36. See Article 5, General Permit Provisions. Subsection (c) was amended by resolution adopted on February 8, 1966 which added in item (a) of subdivision (2) the requirement for graduation within the two year period prior to application and added items (b) and (c) to subdivision (2).

Resolved further, That this resolution shall take effect immediately.

A true copy.

WILLIAM J. MCCLEARY, Jr.,
Secretary.

Filed with the City Clerk on February 9, 1966.

Appendix 16

Analysis of California Licensure Laws for Clinical Laboratories and Related Personnel

[Based upon California Business and Professions Code, §§ 1200–1322]

I. Purpose

To safeguard public health and establish performance standards in medical laboratories by specifying the education and training necessary before a person may direct or perform technical procedures in a laboratory.

II. Administration

Laws and Regulations are administered by the California Department of Public Health headed by the Director of Public Health. The Department of Public Health is part of the Health and Welfare Administration, and the Administrator of Health and Welfare and the Director of Public Health are appointed by the Governor.

The Regulations to implement the statute are made by the State Board of Health, which is appointed by the Governor with the advice and consent of the Senate, and which consists of six physicians, one dentist, two lay persons, and the Director of the State Department of Public Health.

The State Division of Laboratories in cooperation with the Advisory Committee formulates the regulations and recommends any necessary changes in them. Since February 1959, the State Board of Public Health has delegated to the Advisory Committee all the responsibility for advisory legal consideration in the administration of the laws and regulations relating to clinical laboratories.

The State Board of Health appoints the Advisory Committee on Laboratories, which contains two pathologists, two bioanalysts, and two medical technologists representing the California Society of Clinical Pathologists, the California Association of Clinical Laboratories, and the California Association of Medical Laboratory Technologists.

The Advisory Committee's advice becomes mandatory with the approval of the State Board of Health and no formal action on any matter relating to clinical laboratories is taken by the State Board of Health before the Advisory Committee has given consideration to it.

III. Individuals or Entities Licensed, Registered, or Accredited

A. Clinical Laboratories—Licensed
B. Bioanalysts—Licensed
C. Medical Technologists—Licensed
D. Technologist Trainees—Registered
E. Laboratories for Training—Licensed
F. Schools—Accredited.

IV. Exceptions, Exemptions, and Sanctions

A. Physicians practicing in their own private offices not receiving specimens or samples by referral. Groups of physicians containing more than five physicians are not considered to be within this exception.

B. State or Federal Laboratories. The State of California employs only licensed personnel in State laboratories.

C. No schools or training laboratories are exempted. No schools providing training in clinical laboratory techniques even if not purporting to offer instruction leading to licensure can operate and no schools for medical assistants may teach the performance of clinical laboratory tests in California.

D. All violations are punishable as misdemeanors with enforcement handled by local law enforcement and police agencies.

V. Clinical Laboratories

A. Must be licensed and have Clinical Laboratory permit secured from the State Department of Public Health.

B. Qualifications

1. All technical procedures must be under direction of a licensed bioanalyst or a licensed physician.
2. All tests must be performed by licensed technologists or supervised registered trainees.
3. Good moral character is the only legal requirement for ownership of a laboratory.
4. No licensed bioanalyst or physician can serve only as the nominal director or supervisor of the laboratory.
5. No trainees can work or be employed in a laboratory without an equal number of licensed physicians, bioanalysts or technologists.
6. Permits must be confirmed by the State Board of Health.

7. The filing of an application which includes the name or names of owners or owner, the director, and name and location of the laboratory is required for licensure.
8. Proper operation of a quality control program is required for each laboratory.

VI. Qualifications

A. Bioanalyst
  1. Education
    a. Before January 1968, a Bachelor's degree in an appropriate science from a college or university accredited by the Western Association of Schools and Colleges.
    b. After January 1968, a Master's or Doctoral degree in biological sciences from a college or university similarly accredited.
  2. Experience—5 years of experience as a licensed technologist under the baccalaureate requirement and 4 years of experience under the master's requirement.
  3. A passing score on a written, oral, and practical examination. The written examination utilizes questions prepared by the Professional Examination Service of the American Public Health Association.

B. Medical Technologist
  1. Education and training
    a. Since January 1, 1965
      (1) A baccalaureate degree in medical technology following 3 years on campus of a college or university accredited by the Western Association of Schools and Colleges and 1 year in training in an accredited laboratory, or
      (2) A baccalaureate degree from a similarly accredited college with a major in biological science or essential equivalent plus 1 year in training in an accredited laboratory, or
      (3) Registration by the Board of Registry of Medical Technologists of the American Society of Clinical Pathologists or an equivalent accreditation body approved by the Department of Public Health with a combination time of work in an accredited college and practical training (with a minimum of 60 hours of college work).

2. A passing score on a written examination utilizing questions prepared by the Professional Examination Service of the American Public Health Association covering the fields of biochemistry, hematology, and microbiology.

C. Technologist trainees
  1. Education
    a. A minimum of 60 semester hours or equivalent quarter hours in a college or university accredited by the Western Association of Schools and Colleges, including 8 hours of inorganic chemistry; 3 hours of quantitative analysis; 8 hours of basic biological science; 4 hours of bacteriology
    b. The other educational prerequisites for certification set forth by the Council on Medical Education of A.M.A. and the Board of Registry of Medical Technologists of American Society of Clinical Pathologists
    c. The other prerequisites for the medical technology licensure except the training requirements.

D. Technology Specialists in Biochemistry, Bacteriology, and Sociology and Parasitology
  1. Education
    a. Master's or Doctoral degree in area of specialty
    b. One year of comprehensive experience in an approved institution or laboratory approved by the department
    c. A passing score on a written, oral, and/or practical examination in the specialty.

VII. Training Schools

A. Colleges or universities accredited by the Western Association of Schools and Colleges or the Northwest Association of Secondary and Higher Schools (or an essentially equivalent agency) preparing persons for licensure shall be considered approved.

B. All laboratories other than those of the colleges must provide training leading to licensure and
  1. Have no more persons receiving practical training at any one time in a clinical laboratory than the number of licensed technologists, bioanalysts, or physicians on the staff

2. Have adequate specimen material
3. Successfully meet the evaluation inspections.

VIII. **Endorsement, Reciprocity**

A. There are no specific requirements for endorsement or reciprocity.

Appendix 17

Analysis of New York City Licensure Laws for Clinical Laboratories and Related Personnel

[Based upon New York City Health Code, §§ 13.07–13.17]

I. Purpose

"To improve the quality of medical care by improving the competence of private and public clinical laboratories."

II. Administration

Laws and Regulations are administered by the Board of Health. It is headed by the Commissioner.

III. Individual or Entities Licensed, Regulated, or Accredited

A. Clinical laboratories—permit
B. Clinical laboratory director—certificate of qualification or certified by the American Board of Pathology
C. Clinical laboratory supervisor—certificate
D. Clinical laboratory technologist—certificate or licensed by the State
E. Clinical laboratory technician—certificate or licensed by the State
F. Clinical laboratory trainee—certificate or licensed by the State
G. Histology technician—not licensed
H. Handler of live pathogenic organisms—license or under direct supervision of a licensed person or permit
I. Blood bank director—certificate
J. Blood bank supervisor—certificate
K. Blood bank technologist—certificate or licensed by the State
L. Blood bank technician—certificate
M. Blood bank trainee—certificate.

IV. Exceptions, Exemptions, and Sanctions

A. A licensed physician in treatment of his own patients

B. State or Federally owned laboratories
C. Failure to comply may result in revocation of a permit, and/or fine or imprisonment.

V. Clinical Laboratories

A. Permit which designates the specialties or procedures which the laboratory is authorized to perform, and includes only those specialties or subspecialties which the director or technical personnel are qualified to carry out. The specialty areas include: Microbiology, hematology, clinical chemistry, tissue pathology, and/or exfoliative cytology, and any other tests which the Department may specify.

VI. Qualifications

A. Clinical laboratory director
  1. Education
     M.D., D.D.S., D.V.M., D.S.C., or Ph. D. with chemical, physical, or biological science as major subject from an institution accredited by an appropriate agency of the State or by the Association of American Universities or an institution of equivalent standards
  2. Experience
     Four or more years subsequent to graduation; at least 2 years in laboratory specialty (can be waived by examination)
  3. Examination
     Written, oral, and practical examination given by the department in one or more of the specialties (if does not meet the education and experience requirements)
  4. *Requirements may be waived.*
B. Clinical laboratory supervisor
  1. Education and training
     a. M.D., D.S.C., or Ph. D. with chemical, physical, or biological science as major subject from institutions accredited by an appropriate agency of the State or the Association of American Universities *or equivalent—2 years' experience in laboratory specialty;*
     b. Or MA or MS from accredited institution with major, in chemical, physical, or biological science—4 years' experience in laboratory specialty;
     c. *Or registration in a laboratory specialty by a national board of registry;*

        - d. Or BA or BS from accredited institution with major in chemical, physical, or biological science—6 years' experience in laboratory specialty.
    - 2. Examination

      Written, oral, and practical examination given by the department (if do not meet educational and experience requirements)
    - 3. *Qualifications may be waived.*
- C. Clinical laboratory technologist
    - 1. Education and training
        - a. BA or BS from an accredited school with major in chemical, physical, or biological science; or
        - b. Registration in a laboratory specialty by a national board of registry; or
        - c. One year experience as technician or trainee.
    - 2. Examination

      Written, oral, and practical examination given by the department (if do not meet education and training requirements)
    - 3. *Qualifications may be waived.*
- D. Clinical laboratory technician
    - 1. Education and training
        - a. 60 semester hours of college in certain required courses—1 year experience,
        - b. High school graduation—2 years' experience subsequent to graduation,
        - c. High school graduation and has passed a written, oral, and practical examination given by the Department.
    - 2. *Qualifications may be waived.*
- E. Clinical laboratory trainee
    - 1. Education

      Sufficient education during training period to meet requirements for clinical laboratory technologist.
- F. Histology technician
    - 1. *No requirements*
    - 2. Not allowed to perform any clinical laboratory tests.
- G. Handler of live pathogenic organisms
    - 1. Education and training

      M.D., D.D.S., or D.V.M. or supervised by a person with M.D., D.D.S., or D.V.M.

H. Blood Bank Director
  1. Education and training
    a. M.D.
    b. Three years of training in fields of hematology and immunology.
  2. Examination

     Written, oral and/or practical examination given by the department in hematology and immunology.
  3. *Requirements may be waived.*

I. Blood bank supervisor
  1. Qualifications same as for clinical laboratory supervisor.

J. Blood bank technologist
  1. Qualifications same as for clinical laboratory technologist.

K. Blood bank technician
  1. Qualifications same as for clinical laboratory technician.

L. Blood bank trainee
  1. Qualifications same as for clinical laboratory trainee with specialty in transfusion technology.

VII. Endorsement, Reciprocity

There are no specific requirements for endorsement or reciprocity.

Note: *There is a special set of qualifications for those persons who, prior to February 4, 1963, had certificates under the old requirements.*

Appendix 18

Voluntary Accrediting and Certifying Organizations Affecting Schools and Individuals in Medical Laboratory Work

I. Accrediting Organizations in the Field of Medical Laboratory Personnel

There are four organizations which do some accrediting of medical laboratory training schools.

A. The American Society of Clinical Pathologists and American Society of Medical Technologists

1. Board of Schools of Medical Technology (and Cytotechnology) of the American Society of Clinical Pathologists, Galveston, Tex.—"The Board of Schools of Medical Technology was established by the American Society of Clinical Pathologists in 1949 for the primary purpose of maintaining high standards of education in approved schools of medical technology and the development of new schools through evaluation and inspection. It acts in an advisory capacity to the Council on Medical Education of the American Medical Association, which is the official approving body for schools of medical technology. The Board is a standing committee of the American Society of Clinical Pathologists (ASCP) and consists of five members of the society and four members of the American Society of Medical Technologists (ASMT)." The ASMT is a professional organization of medical technologists.

The members of the Board are elected by their respective groups, the ASCP and the ASMT. There is a rotation system and a limitation on terms for which a member may be elected to the Board. It is considered desirable that the ASCP representatives should be heads of schools of medical technology.

Members of the Board and members of the inspection teams contribute their time to the work of the Board. Actual Board expenses are met by the ASCP. There are no fees exacted of the schools.

The American Society of Clinical Pathologists has made the Board of Schools responsible for "establishing and maintaining high standards of education in A.M.A.-approved schools of medical technology and cytotechnology. In its three principal procedures, the Board * * *

—Edits, publishes, and distributes a "Guidebook for an Approved School of Medical Technology," for use by school officials seeking initial or continued A.M.A. approval, and by persons seeking information on admission requirements of A.M.A.-approved schools;

—Evaluates initial applications for A.M.A. approval of schools of Medical Technology and Cytotechnology and reports findings and recommendations to the A.M.A. Council; and

—Makes periodic survey visits to all A.M.A.-approved schools of Medical Technology and Cytotechnology, and reports findings to the A.M.A. Council on Medical Education for consideration and action."

"Schools of medical technology are encouraged to affiliate with colleges and universities whereby an educational sequence of 3 years of college and 1 year of hospital training will lead to a baccalaureate degree. This affiliated program should be a cooperative effort. There should be liaison between the college and approved school so that the preclinical work is satisfactory to the approved school and the practical clinical work, including didactic instruction, meets the collegiate requirements for a degree.

"The Board of Schools of Medical Technology believes the basic concepts of a good school of medical technology should be the following:

a. A pathologist-director who is interested in the proper training of medical technologists.

b. A teaching supervisor and other ASCP registered medical technologists who are interested in training medical technologists.

c. A program which imparts fundamental knowledge of medical technology and practical skill in the field.

"Therefore, in order to establish a school based on these concepts, the following are necessary:

a. An adequate staff of well-trained ASCP registered medical technologists who can impart their knowledge to the student through the teaching of methods, as well as the demonstration and supervision of the performance of laboratory tests.

b. A properly equipped modern laboratory where even the more complicated tests can be taught.
c. Sufficient clinical and adjunct teaching material to give the student necessary practical skill and knowledge.
d. A program, well oriented to the teaching of medical technology to include lectures, laboratory practice, and examinations.
e. Students who are considered as students and not as supplementary laboratory workers."

A.M.A.-approved Schools of Medical Technology provide 12 months' training to qualified students who have completed 3 years of college. Schools of Cytotechnology provide 12 months' training to qualified students who have completed 2 years of college.

Standards, known as "Essentials," for accreditation of schools of medical technology have been established by the A.M.A. Council on Medical Education with the cooperation of the Board of Schools of Medical Technology, the Board of Registry of Medical Technologists of the American Society of Clinical Pathologists and the American Society of Medical Technologists. They cover: Administration, Organization, Faculty (the required ratio in laboratory practice is no more than two students to one member of the teaching staff), prerequisites for Admission (including a certain number of hours in specific sciences), Curriculum, Clinical Material, Ethics, Health, Admission (for approval of a school for the training of technologists).

The essentials of an acceptable school of Cytotechnology are, of course, less comprehensive than those for schools of medical technology. However, the ratio of students to faculty is the same for both types of school; i.e., a maximum of two students to each teaching staff member.

Schools accredited by the Board are nearly 100 percent medical school or hospital based. There are approximately 800 approved schools ranging in size of student capacity from two to 60. Some 30 new schools may be accepted in any 1 year and a like number may be disaccredited. Each school must be reaccredited at least every 5 years. Certain schools may be visited more frequently, for instance, if the annual report from the school indicates that a problem may exist. There is no provisional status; however, the Board can recommend accreditation providing that some problem, such as staff vacancy, will be corrected by a specific time.

Each inspection team consists of a pathologist and a medical technologist selected from the area, but not the immediate vicinity, of the school to be evaluated. Approximately one-half a day is spent onsite by the team. Each team member works independently of the others but covers the same ground. Their reports are filed independently. The Board is concerned because of the variation possible in application of standards when there are as many inspection teams operating as is necessary to re-accredit close to 200 schools each year.

The confidential file of inspection reports on schools is kept by the Chairman of the Board of Schools of Medical Technology, Galveston, Tex. Materials which have been obtained from the Chairman by the reconnaissance consultants are: Guidebook for an Approved School of Medical Technology, Essentials of an Acceptable School of Medical Technology, and Essentials of an Acceptable School of Cytotechnology, outline for inspection of schools, application forms for schools of medical technology, and for cytotechnology, annual report forms for both types of schools, lists of accredited medical technology and cytotechnology schools.

The Council on Medical Education of the American Medical Association, in collaboration with the Board of Schools of Medical Technology, is the only organization recognized by the National Commission on Accrediting, for accreditation in medical technology.

2. Board of Certified Laboratory Assistants of the American Society of Clinical Pathologists, Chicago, Ill.—The Board of Certified Laboratory Assistants (CLA) acts for the ASCP and the ASMT. Set up in 1962, it is responsible for establishing standards for training Certified Laboratory Assistants and for accrediting hospital and laboratory schools for the program. The expectation is that the Council on Medical Education of the American Medical Association will soon acccept the classification of schools for training Certified Laboratory Assistants and will then participate in the approved process. Approved CLA schools provide 12 months' training to qualified high school graduates.

The essentials for an approved school of laboratory assistants cover: Administration, Organization, Faculty (in laboratory practice, enrollment may not exceed two students to each member of the teaching staff), Prerequisites for Admission, Curriculum, Clinical Material, Ethics, Health, Admission Procedure for approval of a school. These are established by the CLA Board. The accrediting body of the Board is comprised of five members representing the pathology and the medical technology professions.

No institution may conduct a CLA training school if it is operating a Medical Technology school (described in A above) unless it has a bed capacity of 500 or more. If an institution has been approved for both types of training, there must be complete separation of the two programs.

Inspection teams are made up of two pathologists and two medical technicians who are selected from the areas near the school to be visited. The time expended on each evaluation visit is approximately 1 day. Between five and 10 schools are visited each year. Expenses of the inspection team are paid by the Board. There is no cost to the school for inspection or accreditation.

Each approved school must submit an annual report to the Board. If analysis of a report leads to a question about the school's adherence to standards, an inspection visit is scheduled.

As of May 1, 1966, there were 118 approved schools for the training of Certified Laboratory Assistants. Among this number there are hospital schools, technical institutes, a Veterans Administration Center, laboratories, community colleges, and vocational schools.

B. Accrediting Bureau of Medical Technology Schools of American Medical Technologists, Park Ridge, Ill.

The Bureau, the accrediting body of the American Medical Technologists (AMT), while a part of the AMT organizational structure is autonomous in that the actions of the Bureau are not subject to review by the AMT Board of Directors.

The philosophy of the organization with respect to accrediting is described in the "Manual of the Accrediting Bureau of Medical Technology Schools," June 1966 revision.

"The American Medical Technologists believe that among all the present organizations and professional groups currently involved in medical technology, it is the one best suited to act as the accrediting agency for the field. It is the only association and registry of medical technologists in the United States not owned, directed, or regulated by either the pathologists or by schools whose default has contributed to present day poor conditions. In considering the currrent situation and the definition of accrediting, it is clear that the accrediting procedure involves a need for:

1. The establishment of common philosophies or goals, objectives, and criteria.
2. The identification and description of criteria.
3. The appraisal of institutions in light of philosophy and criteria by competent professionals who are respected peers.
4. The reexamination periodically to insure maintenance of these standards.

5. The issuance of listings of those schools meeting the standards to inform the public, the student, and the professional community."

A school must meet the following standards in order to be accredited by the Bureau:

"1. It is located in the United States of America or its territories.

"2. It is an institution whose principal effort is educational in nature and is either a hospital or laboratory training school or a vocational school (nonprofit or for profit) or other postsecondary school.

"3. It is a resident educational institution.

"4. It is properly licensed or chartered under the laws and regulations of its State where such laws exist.

"5. It has been teaching medical technology and/or related fields for 3 years or more.

"6. The courses are generally considered to be at the post high school level.

"7. The program of courses required for individual student and graduation consists of at least 1,500 clock hours and 1 academic year in length.

"8. A licensed physician is a member of the staff and faculty in a regular capacity.

"9. It has a qualified administrative staff and teaching faculty.

"10. A suitable internship, placement, and/or on-the-job training program, or residency program is in effect.

"11. All graduates take the AMT examination with 65 percent or more achieving a passing grade. However, no student is required to join or register with American Medical Technologists."

Policymaking and administration of the Bureau is the responsibility of a Board of Commissioners. The Commissioners, nine in number, are appointed by the AMT Board. They include four persons from within and five persons outside the medical technology field. It is intended that Commissioners from outside the field should include representatives from medicine, hospital administration, government, universities, public schools, and adult and vocational education. Term of office is 3 years and there is a maximum of two terms for those Commissioners appointed from the medical technology field.

An institution applying for accreditation, following communication with the Bureau to determine potential eligibility, completes and submits a Self-Evaluation Report to the Bureau. The report covers: The history and organizational structure of the institution, its educational philosophy, objectives, programs, courses, qualifications of faculty, student services, evaluation of student satisfaction with training, admission practices, advertising, financial responsibility, tuition policies, plant and equipment, changes in curriculum and policies, and quality control. It is specified that the ratio of students to faculty, in the performance of laboratory work, should not exceed 20 to 1, or, in hospital training schools, 2 to 1.

Inspection of the applicant institution is conducted by a team of three persons, a medical technologist and two persons from any of the following fields: Education, medicine, or vocational education. The length of time an inspection takes is from 1½ to 2 days.

Examining team reports and the completed Self-Evaluation Report are reviewed and approved, or disapproved, by the Board of Commissioners.

Each accredited institution must be reevaluated every 2 years. However, all accredited institutions are being reevaluated currently in terms of revised criteria for accreditation.

Institutions pay an initial application fee of $50 and the actual costs of the inspection team. When accredited, the institutions pay an annual fee based on the number of medical technology students enrolled: One to 25 students, $150; 26 to 50 students, $300; more than 50 students, $450.

Commissioners who are not members of the AMT receive an honorarium of $100 per day for Bureau meetings attended. All Commissioners receive travel expenses. Examining team specialists may be paid honorariums and expenses.

Each accredited institution must file an annual report form with the Bureau.

As of September 1966, there were 15 schools accredited by the Bureau. Nine of these have 50 or more students. Four of the 15 schools are hospital based.

All records and reports are kept on file in the American Medical Technologists headquarters.

Materials obtained from the Accrediting Bureau of Medical Technology Schools are: The Bureau's Manual, Annual Report form, Self-Evaluation Report form, Application form, list of schools, Examiner's Rating form, Guide for Examining Committee.

C. International Registry of Independent Medical Technologists, Enid, Okla.

1. Sponsoring organization—International Registry of Independent Medical Technologists.
2. Certifying body—International Registry of Independent Medical Technologists.
3. Organizational structure:
   a. Incorporated in 1962.
   b. Accepts applications from hospitals or laboratories.
   c. Accrediting standards currently used—
      (1) Eighteen-month program.
      (2) High school graduates or equivalents.
4. Registry's policy made by five directors.
5. Institution applying for Accreditation:
   a. Executive Secretary of Registry inspects—
      (1) Reviews student records.
      (2) Reviews syllabus material and faculty.
   b. Board of Directors officially approve.
6. Reevaluation—executive secretary makes surprise visit.
7. Fees (no data).
8. Registry's power: approved one school.
9. Student exam—pass registry exam.

D. The Accrediting Commission, International Society of Clinical Laboratory Technologists, St. Louis, Mo.

1. Sponsoring organization—International Society of Clinical Laboratory Technologists.
2. Certifying body—International Society of Clinical Laboratory Technologists.
3. Organizational structure:
   a. Autonomous.
   b. Accrediting standards currently used—
      (1) Teacher—student: 1–25.
      (2) Consideration given to faculty, enrollment standards, and equipment.
      (3) Twelve-month course.
      (4) High school graduates.
      (5) Educational focus.
4. Society's policymaking by five commissioners:
   a. Educational Class elects (Educational Class is made up of one representative of each member school).

   - b. Two commissioners from Educational Class; three outside.
5. Institution applying for accreditation:
   - a. No inspection if Armed Forces or American Association of Junior Colleges approve.
   - b. One commissioner and outsider inspect—
     - (1) Two days.
     - (2) Reports made to Board of Commissioners.
   - c. Commission meets and votes.
6. Reevaluation—no data.
7. Fees.
   - a. Inspection fee—$350.
   - b. Accreditation—
     - (1) One to nine students—$250.
     - (2) Ten to forty-nine students—$550.
     - (3) Fifty plus students—$1,000.
8. Society's power—no data.
9. Student examination—must take standard qualifying examination prepared by commission.

II. Certifying Organizations in the Field of Medical Laboratory Personnel

The following narrative describes briefly the functions and structure of four certification groups in the medical laboratory field:

A. American Society of Clinical Pathologists and American Society of Medical Technologists

1. Board of Registry of Medical Technologists, Muncie, Ind.—The Registry of Medical Technologists was established in 1928 by the American Society of Clinical Pathologists (ASCP) for the purpose of standardizing the training of laboratory assistants. The office of the Registry is conducted by a registrar who works under the direction of the Board of Registry chairman.

The Board of Registry of Medical Technologists is a standing committee of the ASCP. It consists of five members of the ASCP and four members of the ASMT.

There are eight certification programs conducted by the Board of Registry. The principal one is that for certification in Medical Technology. For this certification, an applicant must have satisfactorily completed at least 12 months of instruction in medical technology in a school approved by the Council on Medical Education of the A.M.A., and have passed the examination conducted by the Board. A prerequisite to acceptance in such a school is completion of 3 years of college which must have included a designated number of hours in Chemistry, Biological Sciences, and Mathematics.

Other certification programs are: Specialist (in a specific science), Histologic Technique, Chemistry, Microbiology, Blood Banking, Exfoliative Cytology (Cytotechnology), and Nuclear Medical Technology.

Registry responsibilities include: Evaluation of transcripts of applicants to verify academic eligibility for admision to A.M.A. approved schools; conducting examinations for certfications in the eight classifications; issuing certificates to successful examinees and to persons renewing their certificates, maintaining a permanent record of registrants; distributing the monthly "Technical Bulletin" to registrants.

Recruitment for the field is carried out by the National Committee for Careers in Medical Technology, an organization sponsored by the American Society of Medical Technologists, the American Society of Clinical Pathologists, and the College of American Pathologists.

Examinations for each of the classifications are developed by the Board of Registry and are revised for every examination. Those given for Medical Technologist are scheduled for July and November each year. Other classification examinations take place in March. They may be given at any place in the world convenient to those taking them. Questions are of an objective type, taking about 3 hours to complete.

The examination fee is $20. Certification renewal is $3 each year.

There are approximately 43,000 MT (ASCP) members—Medical Technologists certified by the Registry. Approximately 13,000 additional persons are Certified Cytotechnologists—CT (ASCP).

2. Board of Certified Laboratory Assistants of the American Society of Clinical Pathologists, Chicago, Ill.—In 1962 the American Society of Clinical Pathologists (ASCP) and the American Society of Medical Technologists (ASMT) initiated the Certified Laboratory Assistant (CLA) program to help release the time medical technologists were spending on performing simple, routine laboratory tests by training laboratory assistants to carry out uncomplicated laboratory procedures.

The CLA Board is composed of eight representatives of the ASMT and the ASCP. Its responsibilities for defining criteria for acceptable CLA schools and for evaluating and approving schools have already been noted in the accreditation section of this appendix. The Board is also responsible for conducting examinations for graduates of approved CLA schools, for issuing certificates to successful examinees, and for issuing annual renewals.

The prerequisite for entrance into CLA schools is graduation from an accredited high school. The length of training is 12 months. The examination which it is necessary to pass before becoming a CLA is set up by a subcommittee of the CLA Board consisting of a pathologist, a medical technologist, and an educator with a scientific background. There is item analysis of the test in which electronic data processing is used. Approximately 200 questions appear on the examination which takes about 2½ hours to complete. It is given once a year at various centers in the country.

In addition to students who have completed the required course, there is an equivalent provision permitting a person with 3 years of experience in laboratory assistant work to take the examination. About 12 percent failed last year's examination, the greatest percentage of those failing being persons in the equivalent provision group.

The fee for taking the examination is $20. The certification renewal fee is $3 each year.

There are approximately 2,500 Certified Laboratory Assistants.

B. American Medical Technologists, Park Ridge, Ill.

1. Sponsoring organization—American Medical Technologists.
2. Accrediting body—Accrediting Bureau of Medical Technology Schools of American Medical Technologists.
3. Organizational structure:
   a. Established 1939.
   b. The year 1962 had internal problems over degrees.
   c. Surveys conducted to establish educational requirements desired by employers.
4. Policymakers:
   a. Twelve-member Board of Directors—
      (1) Nine elected for 3-year term by delegate body.
      (2) Three appointed by board.
   b. Delegate body—each State charter group of 50 elects one.
5. Institutional requirements for certification:
   a. High school graduate.
   b. Graduate of school accredited by the accrediting bureau of AMT.
   c. Had 18-month course.
   d. Six-month experience.
   e. Exception—Armed Forces program qualifies.

6. Fees:
    a. Application fee—$10.
    b. Annual renewal fee—$30.
7. Power and influence:
    a. Forty active State groups.
    b. AMT has placement service, recruitment program, and group insurance for members.
    c. Registered members, 10,000 (1966).
8. Examination—required registry examination.

C. International Registry of Independent Medical Technologists, Enid, Okla.

1. Sponsoring organization—International Society of Clinical Laboratory Technologists.
2. Accrediting body—The Accrediting Commission, International Society of Clinical Laboratory Technologists.
3. Organizational structure:
    a. Organized in 1962 after AMT proxy fight.
    b. "We are only registry for the technician and not controlled by schools."
    c. Two certification programs—
        (1) Technicians.
        (2) Medical technologists.
4. Policymakers:
    a. Board of Directors elected for 3-year term by membership.
    b. No elections yet as current board is initial board.
5. Requirements for certification:
    a. Certified technician—
        (1) High school graduate.
        (2) Pass written examination.
        (3) Work in hospital for 1 year.
        (4) Pass examination.
    b. Medical Technologists—
        (1) Eighteen-month course.
        (2) One year experience.
        (3) Pass examination.
6. Fees:
    a. Examination—$5.
    b. Renewal annual—$15.

7. Power and influence:
   a. Certified technicians—24.
   b. Medical technologists—800.
   c. Offers a placement service.
8. Exam:
   a. Certified technician—150 questions.
   b. Medical technologist—300 questions.

D. International Society of Clinical Laboratory Technologists, St. Louis, Mo.

1. Sponsoring organization—International Society of Clinica Laboratory Technologists.
2. Accrediting body—The Accrediting Commission, International Society of Clinical Laboratory Technologists.
3. Organizational structure:
   a. Organized in 1962 in opposition to AMT and prominence of pathologists in directing affairs of Medical Technologists.
   b. Organized by industrial relations firm which continues to administer.
4. Policymakers—industrial relations firm.
5. Requirements for certification:
   a. Graduate of school approved by organization's accrediting commission.
   b. Pass International Society examination.
6. Fees:
   a. Examination—$5.
   b. Dues, Annual—$20.
7. Power and influence:
   a. Members—3,250.
   b. Some 750 took examinations last year.
8. Examination:
   a. Required examination made up by board's education committee.
   b. There are 100 multiple questions.
   c. Examination records kept.

Chapter III

Licensure of Dentists and Dental Personnel

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Licensure of Dentists and Dental Personnel

While the ratio of physicians to population has remained fairly constant, the ratio of dentists to population has declined steadily since 1950, and an even sharper decline has occurred in the ratio of non-Federal dentists to the civilian population.[1] The shortage of dentists is accentuated by uneven distribution. Among different regions of the country, the ratio of dentists to population varies greatly, with the highest ratio in the Northeastern States and the lowest in the South.[2] Even States with a high overall ratio of dentists to population have counties with an extremely low ratio.[3]

Dental auxiliary personnel are also in short supply. These personnel consist of dental hygienists, with at least 2 years of collegiate training, who are licensed to provide specific services under the supervision of a dentist; dental assistants, who are unlicensed and trained in 1- or 2-year programs (or in dentists' offices) to assist the dentist in chairside functions; and dental technicians, also usually unlicensed, who receive on-the-job training in dentists' offices or commercial laboratories, or are trained in one of six accredited 2-year programs.[4] The 15,000 dental hygientists in the United States are the equivalent of fewer than 10,000 full-time hygienists because of the prevalence of part-time work,[5] and most hygienists are located in large urban centers.[6] As of May 1962, dentists in the United States averaged one dental auxiliary each, but 25 percent of the dentists had none.[7] A more recent survey of dental practice, counting part-time and full-time hygienists employed during all or part of 1964, found that 90 percent of dentists employed one or more hygienists.[8]

The shortage of dental manpower seems even greater when these statistics are considered in conjunction with accumulated unmet dental needs. One survey estimated that in 1960 the 180 million people in the United States had at least 700 million unfilled cavities or an average of about four per person.[9] This index of need relates only to dental caries, not including needs for periodontal, orthodontic, or other dental care. To date, however, needs have not been equalled by demands. According to the National Health Survey in 1963 and 1964, only 42 percent of the civilian noninstitutional population made one or more dental visits in the previous year, and 16.6 percent of the population had never seen a dentist.[10] Children in low-income areas of large cities suffer from almost total dental neglect.[11] If the demand for dental care should only moderately approach the level of need, the shortage of dental personnel could become critical.[12]

One primary method of meeting present and projected requirements for dental manpower is by increasing the productivity of dentists through expanded use of dental auxiliaries.[13] A survey of dental practice, using income as an index of productivity, found that dentists with one chair and one assistant earned 52 percent more than dentists practicing in one-chair offices without an assistant; dentists with two chairs and two assistants had mean net incomes about 63 percent higher than dentists with one chair and one assistant.[14] These indications of increased productivity are, of course, based on use of dental auxiliaries under present legal definitions of their qualifications and responsibilities.

Obviously, dental manpower may be increased by either additional practicing dentists or additional use—in greater numbers or with broader functions—of auxiliary dental personnel. Accordingly, the present chapter examines the effect of licensure laws upon the qualifications for practice of dentists and dental auxiliaries, and upon the scope of practice for auxiliary personnel. Policy issues are delineated for the further consideration of the dental profession, State legislatures, and licensing agencies.

A. Licensing Agencies

State dental practice acts, like the medical practical acts, establish minimal standards for admission to and continuation in the practice of dentistry. To administer these standards, they establish boards of dental examiners or equivalent agencies.[15] In all jurisdictions the licensing agency for dentists also administers the licensure of dental hygienists, and, in the few States where they are licensed, dental laboratory technicians as well.[16]

In composition and selection of members, dental licensing boards are similar to medical licensing boards. They are composed entirely of practicing dentists, except for three boards which include nonprofessional public members.[17] Faculty disqualifications exist in 25 jurisdictions.[18] Members are usually nominated by the State dental society and appointed by the governor, although in four States the Board is directly elected by the State dental society or the State's licensed dentists.[19] In 20 jurisdictions the dental licensing agency is nominally attached to a department of State government;[20] but, as with medical licensing boards, dental boards generally have considerable autonomy and minimal connection with other State agencies having responsibility for health affairs.

B. Dentists

All U.S. jurisdictions mandatorily require licensure for the practice of dentistry. The licensure statutes generally define the practice of dentistry as holding one's self out as being able to diagnose, treat, operate, or prescribe for any disease, pain, injury, deficiency, deformity, or physical condition of the human teeth, alveolar process, gums, jaws, and adjacent tissues, or offering to treat such conditions.[21] Precise terminology varies considerably among the statutory definitions, but these variations do not generally affect the scope of dental practice.[22]

1. Licensure Qualifications

Primary requirements for dental licensure relate to professional education and qualifying examinations. All States require graduation from a dental school approved by the licensing agency.[23] By statute [24] or administrative regulation or practice, all dental boards require that schools be accredited by the American Dental Association through its Council on Dental Education. The Council is the only recognized national accrediting agency for schools of dentistry and dental hygiene, dental laboratory programs, and dental internships and residencies.[25] Three of the nine members of the Council on Dental Education are appointed by the American Association of Dental Schools, and many of the Council's 170 consultants are members of dental school faculties.[26] Nevertheless, the American Association of Dental Schools is not so influential in the accreditation of dental education as is the Association of American Medical Colleges for medical education. Primarily concerned with educational policy and curriculum, the A.A.D.S. does not undertake independent visitations to and consultations with dental schools.

The dental licensure statutes of four States contain specific curricular requirements.[27] Without empirical data, however, it cannot be determined whether these requirements assure adequate standards of preparation, or whether or not they may impede innovations in dental education.

The statutes of all States provide for a written examination to test the qualifications of all candidates for licensure.[28] These examinations, given at the completion of undergraduate dental education, also include practical or clinical examinations in all the States.[29] Whereas undergraduate medical education does not produce graduates who are prepared to begin immediate unsupervised practice, graduates of dental schools are considered prepared for, and frequently assume, general practice without internship or other graduate education. Because of the lack of required graduate training, licensure examinations are, at least in theory, more significant requirements for dental than for medical candidates, since they coincide with entrance into independent practice. Empirical studies would be required to determine whether written examinations adequately test comprehension and recall of dental school education, whether practical examinations accurately measure fitness and competence to practice, and finally, whether these examinations unnecessarily confirm the academic and clinical preparation provided by accredited schools of dentistry. Absent such data and guidelines, changes in statutory requirements cannot currently be recommended.

Examinations for licensure of dentists are prepared by the State licensing agencies and by the National Board of Dental Examiners, formed in 1958 to develop standardized examinations in the theory and science of dentistry. Forty-four out of fifty-four State, territorial, and district boards accept the National Board examination for the written, theoretical examination for dental licensure, but practical or clinical examinations are prepared and administered in all States by the licensing agency.[30] Unlike the National Board of Medical Examiners, which prepares both theoretical and clinical examinations, the National Board of Dental Examiners prepares only the theoretical examination. This dichotomy of responsibility for the examination of candidates could militate against uniformly high national standards for licensure of dentists, though the American Association of Dental Examiners (a national organization representing State boards) encourages national norms for practical examinations. Complete examination by the National Board of Dental Examiners, and recognition of this examination by all jurisdictions, seem desirable to assure uniform and adequate levels of dental qualifications.

2. Specialized Practice

In the majority of States, dental specialists are not licensed by State boards of dental examiners. Like specialists in medicine, they are certified by nongovernmental dental specialty boards after meeting strict educational and training standards specified by the specialty boards and the Council on Dental Education.[31] Compliance with this certification procedure is effected not by legal sanctions but by ethical standards enforced by the American Dental Association and its affiliated State and county societies. According to the A.D.A. "Principles of Ethics," a dentist who represents himself to be a specialist is guilty of unethical conduct if he has not in fact met the requirements for specialty certification.[32]

In 10 States, the dental board has additional authority to license specialists in dentistry.[33] The Illinois statute, for example, empowers the licensing agency to "establish higher standards for and make additional requirements of any licensee who announces or holds himself out to the public as a specialist or as being specially qualified in any particular branch of dentistry." [34] Professors in approved Illinois dental colleges may be employed to prepare and conduct examinations for specialists. The statute further provides that announcement of a specialty by card, letterhead, or any other printed matter, using such terms as "specialist" or "Practice Limited to * * *," shall be prima facie evidence that a dentist is practicing as a specialist.

In at least one other State, administrative rules of the board of dental examiners permit a practitioner to announce that he is a dental specialist if the notification does not tend to deceive or mislead the public. The board determines the propriety of each such announcement of specialty practice by assessing the professional and educational training of the dentist in accordance with standards set by its administrative rules.[35]

Some dentists contend that announcement of a limited practice does not mean that the dentist is holding himself out as a specialist; that experience and courses in the specialty provide adequate qualifications for limited practice; and that the goal of limited practice is an important incentive for continuing education.[36] The American Dental Association takes the position, however, that announcing a practice limited to one field is the equivalent of holding one's self out as a specialist.[37] Even if specialty certification should remain, in the majority of States, the province of professional specialty boards rather than governmental licensing agencies, the licensure process might well reduce the possibility of public confusion by reinforcing the position of the American Dental Association and prohibiting notification of limited practice unless the dentist meets specialty board qualifications.

3. License Renewal

In 45 States and the District of Columbia, the licensure statutes require annual renewal of dental licenses. In five States, dental licenses are valid for 2 years.[38] The process of renewal for dentists, as for physicians and most other professions, requires only the filing of a form and the payment of a fee. No State requires any evidence of continuing education on the part of a dentist seeking renewal of his license. The dentist, once licensed, is not legally required to undertake any further education to keep abreast of scientific and technological developments in his field.[39]

Although the lack of statutory requirements for continuing education characterizes both medical and dental licensure laws, problems of educational obsolescence could be more serious in dentistry than in medicine. Most physicians are in daily contact with other physicians and receive the stimulation of hospital review committees, whereas dental practice is more commonly an independent operation. Increasingly, however, dentistry is being performed in group practices and health service institutions, with resulting scrutiny of the dentist's work by his peers. Expansion of programs of prepaid dental services will also entail evaluations of dental services through audits by review committees.

4. Interstate Recognition

Eleven States have no statutory provisions for recognition, by reciprocity or endorsement, of dental licenses issued by other States.[40] The remaining 39 States and the District of Columbia possess statutory authorization for reciprocity or endorsement, but all require fulfillment of various conditions. All these 40 jurisdictions require graduation from a dental school accredited by the Council on Education of the American Dental Association, and educational qualifications equivalent to those of the State in which licensure is being sought.[41] The great majority of these States require several, commonly 5, years of practice in the State of original licensure.[42] In 15 of the States, a clinical or practical examination is required in addition,[43] and 11 require the applicant to apply in person.[44] Twenty-eight of the 40 jurisdictions require reciprocal recognition of their licenses in the State of an applicant's original licensure.[45] Moreover, in all States with statutory authority for reciprocity or endorsement, except Alaska and New Mexico, licensure of a dentist licensed in another State is discretionary with the board even if the applicant fulfills the stated requirements.[46]

Actual practices of boards of dental examiners are even more restrictive than the language of the statutes would indicate. Replies to a questionnaire submitted to all licensing agencies by the Council of State Governments revealed that only nine States in any way recognize other dental licenses, and eight of these States recognize only licenses of States with which they have reciprocal agreements.[47] Thus, in actual practice, it seems that boards of dental examiners exercise their discretion not to license dentists from other States. This practice may, however, be changing. The Illinois State Department of Registration and Education recently extended an invitation to all other licensing jurisdictions in the United

States to establish formal reciprocal agreements on certain conditions.[48]

One special problem in the interjurisdictional recognition of dental licenses relates to licensure of faculty members of dental schools. Although it is desirable that all faculty members devote full time to teaching and research, in some instances recruitment of faculty depends on their opportunities for part-time practice or consultancies. Faculty members are generally exempted from mandatory licensure or specially authorized to practice within the facilities of the dental school; [49] however, statutory authorization for State boards to issue full licenses to faculty members of approved dental schools by recognition of their out-of-State licenses should be considered. Since "diploma-mill" and proprietary dental schools no longer exist, full licensure allowing private practice would present no danger to the public, and would aid in attracting distinguished dentists to academic service.

Broadened recognition of dental licenses of other jurisdictions would afford dentists greater mobility, although it would probably not improve the ratio of dentists to population in States with less desirable professional opportunities. With respect to women dentists, however, expanded endorsement-reciprocity provisions are especially significant in increasing their numbers and utilizing their skills. The United States has a smaller percentage of women dentists than many other countries,[50] and yet dentistry "might well lend itself to combination with the duties of home and family." [51] If larger numbers of women enter the dental profession, interstate recognition of licenses would be essential to enable them to engage in practice as the mobility of their families dictates.

Policies of license recognition should be related to assuring adequate training and ethical qualifications and the absence of educational obsolescence. The requirement of interstate quid pro quo or reciprocity is irrelevant to a dentist's competence. The only relevant standard for recognition is equivalence of qualifications required by the State of original licensure. Underlying the problem of equivalence is the question of effective and accepted national standards for education and examination of dentists. National standards for dental education are accepted in theory by the States' universal reliance upon national accreditation by the Council on Dental Education of the American Dental Association,[52] but many States justify their restrictive endorsement policies by alleging marked regional differences in dental education. Equivalence of licensure examinations would be facilitated by expansions in the content and use of the examination prepared by the National Board of Dental Examiners.[53] As these national standards are further developed, the recognition policies of all States should be reexamined to determine whether current restrictions are relevant to dental competence and public protection.

5. Practice Standards

Many statutory definitions of the practice of dentistry include management of a place where dental operations are performed.[54] These provisions are designed to assure personal supervision of dental care by a licensed dentist. A few courts have differentiated certain activities of office management as not constituting the practice of dentistry. In one State, for example, a nondentist was permitted to manage a dental office in the absence of lay control over or performance of direct professional services that dentists are licensed to perform.[55] The majority view, however, flatly prohibits nondentist ownership of dental offices and the corporate practice of dentistry.[56]

> (I)f one who is not qualified and licensed to practice is permitted to select and rent an office, and then employ licensed dentists to do the actual work, either upon a commission or salary basis, he would certainly be doing a dental business, and would be doing indirectly what he could not do directly.

Statutory and judicial restrictions upon the unlicensed practice of dentistry are highly desirable as long as they are applied, as intended, to prevent commercialization of dental practice and to assure competent personal services by licensed dentists. If, however, they are more generally interpreted, they could constitute a barrier to innovations which improve the delivery of high-quality dental care, such as consumer-sponsored nonprofit prepaid services rendered by a closed panel of salaried dentists.[57]

Statutory restrictions on the maintenance of multiple offices by a single dentist are also designed to assure personal service by the dentist and to prevent commercialization of dental practice. These provisions may authorize the licensing agency to permit a dentist to maintain more than one office provided he is in personal attendance at each office for specified portions of time,[58] or on proof that the applicant will carry on an actual practice in each office.[59] Statutes which provide conditions under which the practice of an incapacitated or deceased dentist may be continued either temporarily or indefinitely are designed to protect both the public and the practice of the dentist.[60]

Historically, violations of restrictions against corporate practice and multiple offices have frequently involved unethical advertising as well. Perhaps the most notorious examples were provided by "Painless Parker," who established a chain of dental offices employing licensed dentists, and widely advertised cheap and painless dental care—until the courts of several States held these activities in violation of the dental practice acts.[61] The licensure statutes contain numerous, varied, and detailed regulations of advertising by dentists. In all States, misleading or deceptive advertising is unprofessional conduct for which a dental license may be suspended or revoked.[62] The statutes of most States also ban one or more of the following practices: Claiming superiority or painlessness; advertising fees or bargains; advertising free dental work or examination; using "cappers" to solicit business; advertising any anaesthetic, drug, or medicine; advertising guaranteed dental work or painless performance of any operation; depicting a tooth, teeth, or a portion of a human head; using letters greater than a certain size; etc.[63]

Despite these strictures in the licensure statutes, blatant advertisements appear regularly in California telephone directories [64] and newspapers and on radio programs. Although easy credit is advertised and payment from categorical welfare programs suggested, no fixed fees are advertised. Words such as "sodium pentothal" imply painlessness but do not explicitly promise it. Such advertisements are presumably within the law because they do not depict a facsimile of a tooth, do not guarantee dental work, and do not allege superior dental services.

Although advertising is regulated by all dental practice acts, and by the Principles of Ethics of the American Dental Association,[65] advertising dentists flourish in a few States.[66] Professional opinions differ regarding the quality of care rendered by advertising dentists, and no empirical evaluations have been made. One of the reasons for the continued existence of advertising dentists undoubtedly is the high cost of conventional dental care. Until needs for dental services are met by dentists of high quality at reasonable cost, advertising dentists will probably continue to exist, promising easy payment terms to populations with low levels of dental health education. Thus, the elimination of unprofessional and unethical advertising by dentists may be achieved, not by promulgating further statutory and regulatory restrictions of advertising, but by providing good dental care at reasonable cost through insurance and prepayment plans.

6. Disciplinary Proceedings

After initial licensure, continuing quality of dental practitioners is policed by statutes relating to suspension, revocation, and reinstatement of licenses.[67] As for physicians, most of the grounds for suspension or revocation of dental licenses relate to egregious acts or grossly unprofessional conduct. In 24 States, however, various degrees of incompetence or inefficiency are specified as grounds for revocation.[68]

Dental licensing agencies have broad discretionary authority to determine violations of the dental practice acts and to impose penalties. Reviewing courts will not interfere with this discretion unless it is exercised in an arbitrary or capricious manner [69] because the dental boards are better qualified than the courts to assess the conduct of fellow dentists.[70] Nevertheless, the right to judicial review is an important safeguard of other substantive and procedural rights of dental practitioners. Privileges of notice, hearing, representation by counsel, cross-examination, and a full transcript for purposes of judicial review may be explicitly granted by State dental practice acts [71] or they may be implied by the courts. However, even though disciplinary proceedings are quasicriminal and penalties of license removal are quite severe, not all constitutional protections applicable to criminal cases may be available to defendant dentists.[72]

C. Dental Hygienists

Dental hygienists are licensed in all jurisdictions, and their licensure is administered by the same State agencies which license dentists. As the most highly educated and trained of auxiliary dental personnel, hygienists have a logical and significant role in potentially increasing the productivity of dentists. Realization of this potential depends upon present limitation on their functions, existing requirements for their qualifications, and possible expansions in their use.

1. Present Functions

The licensure statutes, in varying language, authorize dental hygienists to remove calcareous deposits, accretions, and stains from the teeth and to apply topical agents essential to a complete prophylaxis.[73] In almost half of the States, the statutes do not limit hygienists' prophylaxes to the exposed or unattached surfaces of the teeth.[74] Although the statutes of the other States do not permit a hygienist to go below the margin of the gum in performing a prophylaxis, this restriction tends to be disregarded in practice.[75]

Other functions statutorily authorized for dental hygienists in some States include taking and developing of X-rays,[76] topically applying fluorides or medicinal agents,[77] and assisting the dentist in operative and surgical procedures [78] or in his practice generally. These functions are described in the statutes with considerable specificity,[79] and a prohibition against performing any other operations on the teeth or tissues of the mouth is usually included.[80]

All statutes require that hygienists perform authorized functions under the supervision of a licensed dentist.[81] Although supervision is nowhere defined in the statutes, provisions in some statutes limiting the number of dental hygienists a single dentist may employ [82] are evidence that close supervision is intended.

One State attorney general, however, interpreted the requirement of supervision as not necessitating the physical presence of a dentist:[83]

> Obviously, the statute did not intend that a licensed hygienist, who must first possess certain technical qualifications, cannot function without a dentist actually in attendance while he is working for the obvious reason that no dentist would get any work done himself.

More vaguely, an opinion of another attorney general interpreted "supervision" as requiring "actual inspection and overseeing of the work" of the hygienist,[84] thus leaving unresolved the question whether constant physical presence of the dentist is required.

The circumscription of functions authorized for dental hygienists, the prohibition of other acts, the requirement of supervision, and the limitation on the number of dental hygienists a dentist may employ all indicate that the hygienist is legislatively considered an "extra pair of hands" for the dentist rather than a person to whom tasks requiring diagnostic judgment or complex skills may be delegated.

2. Licensure Qualifications

Current statutory definitions of the functions of dental hygienists must be examined in light of requirements for their licensure. In 28 States the licensing statute specifically requires graduation from high school, and in two States at least 2 years of high school are required.[85] All States require graduation from an approved dental hygiene school.[86] (Admission policies of accredited schools of dental hygiene do, of course, require graduation from high school.) In the majority of States a 2-year curriculum in dental hygiene is required, but in four jurisdictions completion of a 1-year curriculum satisfies licensure requirements.[87]

In all States the licensure statutes require approval of a candidate's school of dental hygiene by the licensing agency.[88] The statutes of only five States specify approval of schools according to accreditation by the Council on Education of the American Dental Association, the sole nationally recognized accrediting agency.[89] In practice, however, all licensing agencies generally rely on this accreditation. Curricula of approved or accredited schools of dental hygiene include instruction in basic sciences and practical techniques. In most schools, courses are required in general anatomy, dental anatomy, histology, chemistry, physiology, embryology, pathology, bacteriology, oral pathology, and radiology.

3. Potential Functions

A comparison of statutory limitations on the functions of dental hygienists with the character of their educational preparation suggests that hygienists are perhaps not being used to the full extent of their potential competence because of current licensure laws. Expansion of their allowable functions to increase the productivity of dentists, while at the same time protecting patients against unskilled practitioners, requires careful and proper consideration. Determination of functions which can appropriately be delegated to dental hygienists requires the professional judgment of dental practitioners, educators, and professional organizations. Potential hygienist functions which may be considered include preparation of cavities, insertion of fillings, polishing of fillings, gingival curettage and periodontal care, assistance in minor gingivectomies, making impressions for studying occlusion, placing rubber dams, and administering local anaesthetics—all, of course, to be performed under the supervision of a dentist.

If expanded training is necessary to qualify hygienists for expanded functions, more demanding educational requirements in basic sciences and dental techniques could readily be incorporated in the existing curriculum. Preparation of dental hygienists in the same educational setting as dentists would accustom each to working effectively with the other from the outset of training. Current licensure statutes neither prevent nor require[90] coordination of schools of dentistry and dental hygiene.

The use of dental auxiliaries with more preparation and authority than dental hygienists is gaining increased acceptance in other parts of the world. In New Zealand, for example, dental nurses perform functions of broader scope than those of hygienists in the United States. Various criticisms have been leveled at the New Zealand program—

that there is high attrition among these dental nurses, and that they do not receive credit for training if they want to become dentists—but these criticisms do not relate to the quality of their work. It is generally recognized that the dental nurses have provided competent and safe dental services for New Zealand children (preparation and filling of cavities, prophylaxes, very simple extractions, and dental health education).[91] Moreover, combination of the use of dental nurses and fluoridation of the public water supply has resulted in improved dental health for increased numbers of children. In fluoridated areas, one school dental nurse can treat 690 children, while in nonfluoridated cities one school dental nurse can treat only 475 children.[92] The use of dental nurses has led to heightened public sensitivity to and appreciation of dental health. Children who have been accustomed to seeing the dental nurse every 6 months tend, as adults, to see a dentist regularly, and the dentists in New Zealand are extremely busy.

Most recently, England has begun to train dental auxiliaries to prepare cavities and to place fillings in teeth of children. The Canadian Royal Commission on Health Services has recommended a similar program to train dental auxiliaries to perform these functions under the supervision of a dentist in a proposed public program of dental care for all children aged 5 to 14.[93] Thus, some technologically advanced countries of the world are looking to the potential of allied or auxiliary dental personnel to help solve the dental manpower problem.

Many practicing dentists and dental educators favor expansion of the functions of dental hygienists in the United States,[94] although no survey has been done of the overall views of the profession. The contrary view holds that expansion of functions of auxiliary personnel "would tend to create problems of illegal practice of dentistry, would destroy the personal contact with patients, and is unnecessary to the accomplishment of the desired care of the dental health of the public." [95] Clearly, the expanded use of auxiliary personnel [96] needs additional professional evaluation prior to legislative consideration. Eventual consensus should provide for the maximum production of dental services consistent with the safety and welfare of patients.

D. Dental Technicians

Dental technicians and dental mechanics, working in dentists' offices or in dental laboratories, are an additional resource for expanding the productivity of dentists. In almost all States, these personnel are not licensed,[97] but they are specifically exempted from mandatory dental licensure. These exceptions are for persons who, on the written prescription of a licensed dentist, furnish, supply, construct, reproduce, or repair prosthetic dentures, bridges, appliances, or other structures to be used as substitutes for natural teeth.[98]

More commonly in the past than today, dental laboratories have sometimes made dentures directly for patients, or even employed licensed dentists to take impressions and write work orders. The courts have held these practices in violation of the dental practice acts.[99] Moreover, a licensed dentist may not confer authority on a dental mechanic to work in the mouth, take an impression, or insert and fit a denture; a dental mechanic is permitted to work on inert matter only.[100]

Control of the quality of performance of dental laboratories is accomplished through dentists' application for and review of laboratory products. In this respect, dental laboratories differ from clinical laboratories, which present physicians with results which they cannot verify.[101] Effective regulation of dental laboratory performance, therefore, may consist of statutory provisions requiring the execution, preservation, and inspection of written work orders by dentists to laboratories.[102]

SUMMARY AND CONCLUSIONS

Prevention of educational obsolescence, dental school accreditation, recognition of licenses of sister States, licensure examinations, advertising, and specialization are important problems affecting dental licensure. The most serious problem posed, however, with regard to the effect of licensure laws on the delivery of dental care concerns expanded functions of auxiliary personnel to improve the productivity of the dentist.

At present, licensure laws intentionally limit the statutory scope of functions of dental hygienists and thus circumscribe patterns in the use of personnel. Although it is widely recognized that expansion in the functions of dental auxiliary personnel is essential to increase the productivity of the critically short supply of dentists, a simplistic expansion of functions by statutory revision could lead to difficulties as serious as those occasioned by current legal provisions. Safeguards must be provided against commercial dentistry and work performed by unqualified individuals.

If amendment of the licensure laws to expand functions of dental auxiliary personnel is, in fact, deemed in the public interest, full consideration should be given to changed requirements in the education of dental hygienists or other auxiliary personnel; to education of hygienists and other auxiliaries along with dentists so that effective patterns of teamwork and use of personnel can be established; and to safeguards to prevent commercial exploitation of patients.

FOOTNOTES

[1] *Health Manpower Source Book Section 18, Manpower in the 1960's*, 43 (1964).

[2] Ibid.

[3] Testimony on behalf of the American Dental Association and the American Association of Dental Schools, *Hearings on the Allied Health Professions Personnel Training Act Before the House Committee on Interstate and Foreign Commerce*, 89th Cong., 2d Sess. 70 (1966).

[4] M. Pennell, *Health Manpower 1965, Health Resources Statistics* 44–46 (U.S. Public Health Service Pub. No. 1509, 1967).

[5] Task Force on Health Manpower, National Commission on Community Health Services, *Health Manpower: Action to Meet Community Needs* 67 (1967). See also American Dental Association, *Survey of Dental Practice* (1965).

[6] E.g., in 1963, 12 of California's 58 counties had no dental hygienists, and 18 counties had fewer than five. *Report of the Board of Dental Examiners*, State of California 9 (October 1963).

[7] Bureau of Economic Research and Statistics, American Dental Association, "The 1962 Survey of Dental Practice; Summary," 68 J. Am. Dental Association 132, 133 (1964).

[8] See American Dental Association, *Survey of Dental Practice* (1965).

[9] Commission on the Survey of Dentistry, *Survey of Dentistry* 5 (1961).

[10] U.S. Public Health Service, *National Health Survey*, Dental Visits July 1963–June 1964 (1966).

[11] See Testimony of George James, Commissioner, Department of Health, City of New York, *Joint Public Hearing on Fluoridation Before the Board of Estimate and City Council Comm. on Finance* 3 (Nov. 18, 1963).

[12] Any program of preventive dental health that can decrease the incidence of dental disease has obvious implications for dental manpower. Fluoridation of water supplies is a primary example. For discussion of legal, political, and technical issues affecting fluoridation, see Nathan and Scott, "Fluoridation in California: An Unresolved Public Policy Issue," 7 Pub. Affairs Reports No. 5 (1966); Roemer, "Water Fluoridation: Public Health Responsibility and the Democratic Process," 55 Am. J. Pub. Health 1337 (1965).

[13] See Task Force on Health Manpower, supra note 5.

[14] Commission on the Survey of Dentistry, supra note 9, at 150.

A recent project in St. Louis, Mo., sponsored by the U.S. Department of Health, Education, and Welfare, has demonstrated that the productivity of a dentist can be increased by 50 to 75 percent by the use of five assistants in a dental clinic. Another project, in Louisville, Ky., is studying various team formations to determine the number of dental assistants a dentist can employ most effectively and what duties the assistant can perform most efficiently. W. J. Cohen, "Challenge and Opportunity, Meeting the Health Needs of the Nation," 82 Pub. Health Rep. 565, 569–70 (1967).

[15] See app. 19, "Name of Agency" column.

[16] Id. "Other Occupations Licensed by Agency" column.

[17] Id. "Composition of Agency—Dentists (and Others)" column.

[18] Id. "Composition of Agency—Faculty Disqualification" column.

[19] Id. "Method of Appointment" columns.

[20] Id. "Relation to Department of State Government" column.

[21] See, e.g., N.Y. Educ. Law, § 6601(3).

[22] Variations in other elements frequently included within the definitional statutes, however, may affect the organization of dental practice or the operation of dental laboratories. See ch. 3, §§ B.5., D. infra.

[23] See app. 20, "Education—Professional" column.

[24] Id. "Approval of Dental Schools—A.D.A. Accreditation" column.

[25] For descriptions of the operations of the Council on Dental Education of the American Dental Association, see Commission on the Survey of Dentistry, supra note 9, at 413–416; Nagle, "The Policies and Functions of the Council on Dental Education as an Accrediting Agency," in *18th Congress on Dental Education and Licensure,* 1962 (A.D.A. mimeograph).

[26] American Dental Association, *By-Laws;* letter from Bernard J. Conway, Assistant Secretary for Legal Affairs, American Dental Association, Aug. 18, 1967.

[27] Arkansas, California, Missouri, Pennsylvania. See app. 20, "Approval of Dental Schools—Other Criteria Specified" column.

[28] Id. "Examination—Written" column.

[29] Id. "Examination—Clinical, Practical, or Other" column.

To assure the possibility of objective review of these examinations, 14 States require preservation of prosthetic and restorative models. Id. "Preservation of Materials" column.

[30] Communication from Bernard J. Conway, Assistant Secretary for Legal Affairs, American Dental Association, July 20, 1967. Compare the statutory authorizations of acceptance of National Board examinations cited in app. 22.

[31] Recognized specialty boards are the American Board of Dental Public Health, the American Board of Endodontics, the American Board of Oral Pathology, the American Board of Oral Surgery, the American Board of Orthodontics, the American Board of Periodontology, and the American Board of Prosthodontics.

[32] American Dental Association, "Principles of Ethics," § 18, 75 J. Am. Dental Association 678 at 683 (September 1967). No transitional or "grandfather" provisions have been available since 1965.

[33] Ill. Stat., ch. 91, § 59a (1966); Kan. Gen. Stat., § 65–1427 (1964); Ky. Rev. Stat., §§ 313.400–460 (1962); Mich. Stat., § 14.629(8) (1956); Mo. Stat., §§ 332.062–332.068 (1966); Nev. Rev. Stat., § 631.250 (1964); Okla. Stat., title 59, § 327.23 (1961); S.C. Code, §§ 56–601–610 (1962); Tenn. Code, §§ 63–541, 542 (Supp. 1966); W. Va. Code, § 30–4–17a (1966). See Commission on the Survey of Dentistry, supra note 9, at 125–127.

[34] Ill. Stat. ch. 91, § 59a (1966).

[35] Oregon Board of Dental Examiners, Administrative Rules, ch. 818, § 10–055(3) (1962). As a general rule, the dentist holding himself out as a specialist must be board-certified or have completed the training requisites of one of the dental specialty boards.

[36] Information provided by James R. Freed, D.D.S., M. Ph., School of Denistry, University of California, Los Angeles.

[37] Communication from Bernard J. Conway, Assistant Secretary for Legal Affairs, American Dental Association.

[38] Calif. Bus. and Prof. Code, § 1715; Ill. Stat., ch. 91, § 58c (1966); Ind. Stat. § 63–509 (Supp. 1967); N.Y. Educ. Law, § 6610; Pa. Stat. Ann., title 63, § 123 (Purdon Supp. 1966).

[39] Informal continuing education of dentists may be conducted through study clubs and home instruction encouraged by the U.S. Public Health Service, scientific papers presented at dental society meetings, and continuing education courses provided by

dental schools and societies. For recommendation of a compulsory system of continuing dental education, see Schoen, "An Educator's Concept of State Board Functions," 27 J. Dental Educ. 259, 262 (1963).

[40] Arizona, California, Colorado, Florida, Hawaii, Idaho, Maryland, Michigan, Nevada, Rhode Island, and Utah. Three of these States, however—Arizona, Colorado, and Nevada—by statute will accept certification by the National Board of Dental Examiners in lieu of the State written examination for licensees of other jurisdictions. see app. 22.

For dental hygienists, the statutes of only 31 jurisdictions authorize the recognition of out-of-State licenses. In addition to the 11 States listed above, nine others have no provision for reciprocity or endorsement of hygienists—Alabama, Georgia, Illinois, Massachusetts, New Jersey, North Carolina, Oklahoma, Oregon, and Texas. See app. 22.

[41] Id. "State Approval of Dental School Required" and "Equivalent Education Required" columns.

[42] Id. "Years of Practice Required" column.

[43] Id. "Clinical or Practical Examination Required" column.

[44] Id. "Must Apply in Person" column.

[45] Id. "Only by Reciprocity" column.

[46] Id. "Mandatory or Discretionary" column.

[47] Unpublished data obtained by the National Center for Health Statistics.

[48] See letter from John C. Watson, Director, Department of Registration and Education, State of Illinois, 74 J. Am. Dental Association 944 (1967).

[49] See, e.g., Okla. Stat., title 59, § 327.26 (1959), although there is no dental school in Oklahoma.

[50] Only 1 percent of the dentists in the United States are women. Commission on the Survey of Dentistry, supra note 9, at 528, 531.

[51] Task Force on Health Manpower, supra note 5, at 104.

[52] See ch. 3, § B.1. supra.

[53] Ibid.

[54] See, e.g., Calif. Bus. and Prof. Code § 1625(e).

[55] *Messner* v. *Bd. of Dental Examiners,* 87 Calif. App. 199, 262 P. 58 (1927).

[56] *State* v. *Williams,* 211 Ind. 186, 197, 5 N.E. 2d 961, 966 (1937).

[57] See ch. 5, § A. infra.

[58] E.g., Calif. Bus. and Prof. Code, § 1658.1 (50 percent of time each office is open); Mich. Stat., § 14.629(16) (1956) (1 or more days per week).

[59] E.g., Conn. Gen. Stat., § 20–121 (1958).

[60] Mass. Gen. Laws, ch. 112, § 53 (1965) (widow of licensed dentist or incapacitated dentist may continue practice under licensed dentist); Conn. Gen. Stat. § 20–121 (1958) (incapacitated dentist may continue practice through licensed dentists; widow of licensed dentist may employ licensed dentists to continue practice for 1 year).

[61] E.g., *Parker* v. *Bd. of Dental Examiners,* 216 Cal. 285, 14 P. 2d 67 (1932); *People* v. *Painless Parker Dentist,* 85 Colo. 304, 275 P. 928 (1929).

[62] *Semler* v. *Oregon State Bd. of Dental Examiners,* 294 U.S. 608 (1935); *Rust* v. *Missouri Dental Bd.,* 348 Mo. 616, 155 S.W. 2d 80 (1941). See app. 21.A., "Improper Advertising" column.

[63] See e.g., Calif. Bus. and Prof. Code, § 1680; Ind. Stat. § 63–518(11)(1961); Mich. Stat., § 14.629(17) (Supp. 1965); N.J. Stat., § 45:6–7(g) (1963).

[64] See, e.g., yellow pages, Western Section, Los Angeles, California, Telephone Directory, 126–127 (Mar. 1967). For an example, see supp. 1.

[65] For the concern of the dental profession with the maintenance of professional and ethical standards, see Council on Education of the American Dental Association, *16th Congress on Dental Education and Licensure* (Final Draft of Proceedings, mimeograph, 1960).

[66] Advertising dentists exist mainly in California, Oregon, and Washington.

[67] See generally app. 21. For suspension or revocation because of mental incompetency, see app. 8.

[68] See app. 21.A., "Incompetence or Inefficiency" column.

[69] *People* v. *Collins,* 35 Ill. 2d 499, 221 N.E. 2d 254 (1966).

[70] *Mack* v. *Pepper,* 192 So. 2d 66 (Fla. 1966).

[71] See app. 21.B. "Privileges of Defendant" columns.

[72] See, e.g., *Popper* v. *Bd. of Regents of Univ. State of N.Y.* 26 App. Div. 2d 871, 274 N.Y.S. 2d 49 (1966).

[73] See, e.g., Mich. Stat. § 14.629(9) (1956); N.J. Stat., § 45: 6–33 (1963).

[74] Colo. Rev. Stat., §§ 42–1–28 (1963); Conn. Gen. Stat., §§ 20–111 (1958); Fla. Stat., § 466.38 (1965); Ind. Stat., § 63–537 (Supp. 1967); Iowa Code, § 153.1 (Supp. 1967); Kans. Gen. Stat., § 65–1456 (1964); Ky. Rev. Stat., § 313.010(3) (1962); Maine Rev. Stat., ch. 73, § 25 (1954); Mass. Gen. Laws, ch. 112, § 51 (Supp. 1966); Mo. Stat., § 332.400(3) (1966); Mont. Rev. Codes, § 66–921 (1947): Nev. Rev. Stat., § 631.030 (1963); N. Mex. Stat., § 67–4–19 (1941); N.C. Gen. Stat., § 90–221(a) (1965); N. Dak. Code, § 43–20–03 (Supp. 1967); Ohio Rev. Code, § 4715.23 (1964); Okla. Stat., title 59, § 327.32 (1961); Pa. Stat. Ann., title 63, §121 (Purdon 1959); S.C. Code, § 56–533 (1962); Vt. Stat., title 26, ch. 13, § 854 (1959); Wyo. Stat. § 33–211 (1959).

In Michigan, a ruling of the State board of dentistry authorizes hygienists to operate below the margin of the gum. See N.Y. State Commission on Medical Education, *Education for the Health Professions* 88 (1963): "Why should a dental hygienist who can successfully scale and polish teeth below the margin of the gingivae in Michigan be forbidden to do so in New York?"

[75] A faculty member of the UCLA Dental School stated that because "it's that last bit of calculus at the bottom of the pocket that is most important," very few dentists would tolerate a hygienist who did not go below the level of the gum in doing a prophylaxis.

[76] E.g., Ala. Code, title 46, § 120(36) (Supp. 1965); Mass. Gen. Laws, ch. 112, § 51 (Supp. 1966).

[77] E.g., Mass. Gen. Laws, ch. 112, § 51 (Supp. 1966); N.H. Rev. Stat. § 317:18 (1966).

[78] E.g., Mass. Gen. Laws, ch. 112, § 51 (Supp. 1966).

[79] See, e.g., Ill. Stat., ch. 91, § 59c (1966); Mass. Gen. Laws, ch. 112, § 51 (Supp. 1966); Tex. Rev. Civ. Stat., art. 4551e (1960).

[80] See e.g., Calif. Bus. and Prof. Code, § 1746; N.Y. Educ. Law, § 6614(4).

[81] E.g., Calif. Bus. and Prof. Code, § 1746; N.Y. Educ. Law, § 6614(4).

[82] E.g., D.C. Code § 2–325 (1967) (no more than two hygienists without permission of Board of Dental Examiners); Tex. Rev. Civ. Stat., art. 4551e, § 3 (1960) (no more than one hygienist at any one time).

[83] [1953] Op. Attorney Gen. No. 53–55–128 (Wash.).

[84] [1965] Op. Attorney Gen. No. 65–67 (Ohio).

[85] See app. 23, "Educational—High School" column.

[86] Id. "Educational—Professional School" column.

[87] D.C. Code, § 2–323 (1967); La. Rev. Stat., title 37, § 764 (1950); Mass. Gen. Laws, ch. 112, § 51 (Supp. 1966); R.I. Gen. Laws, § 5–31–12 (Supp. 1966). Cf. Ind. Stat. § 63–532 (Supp. 1967), which permits graduates of 1-year schools of dental

hygiene to substitute for the second year of school either 1 year of hospital internship, 1 year of teaching in a dental hygiene school, 5 years of practice as a dental hygienist, or graduation from an accepted school of nursing together with 8 months' clinical training in a recognized school of dental hygiene.

[88] See app. 23, "Approval of Schools—State Dental Board Approval" column.

[89] Id. "Approval of Schools—A.D.A. Accreditation" column.

[90] But see La. Rev. Stat., § 37:764(4) (1950), requiring that an approved school of dental hygiene must be affiliated with a reputable dental school.

[91] See Fulton, *Experiment in Dental Care; Results of New Zealand's Use of School Dental Nurses* (1951). This authoritative study was published after 25 years' experience in New Zealand. With respect to the quality of care provided by the dental nurse, the author concluded: "The important question is whether the programme saved teeth * * * on this basis, the quality of School Dental Service in New Zealand is high."

[92] Darby and Hollis, "The Effect of Fluoridation on a Dental Public Program," 62 New Zealand Dental J. 32 (1966).

[93] 1 Report of the Canadian Royal Commission on Health Services (1964).

[94] See Brauer, "Enlarging the Scope of Dental Service through Increased and More Effective Use of Dental Auxiliary Personnel," Council on Education of the American Dental Association, *18th Congress on Dental Education* (mimeograph 1962).

[95] Ziegler, "Should the Duties of Auxiliary Personnel Be Expanded?" 14 J. of Prosthetic Dentistry 838, 841–4 (1964).

[96] Some opinion within the dental profession favors not altering the functions of dental hygienists, but expanding the role of dental assistants. The rationale is that dental hygienists are in short supply, and all are needed for prophylactic work, and furthermore, that the dental assistant is oriented towards operative techniques and is accustomed to serve as a chair-side assistant to the dentist. It hardly seems reasonable, however, to advance the lesser trained auxiliary (or the auxiliary with no training beyond office experience) to the position of greater responsibility—especially when there is available an auxiliary with formal education in basic sciences and training in dental techniques. The approach of qualifying the dental assistant, rather than the hygienist, for expanded functions would only serve to delay proper and necessary delegation of functions for many more years.

[97] Technicians are licensed in Pennsylvania and South Carolina, and laboratory operators are licensed in Florida. See app. 19, "Other Occupations Licensed by Agency" column.

[98] E.g., Ill. Stat., ch. 91, § 60a (1966); N.Y. Educ. Law, § 6611; Tex. Rev. Civ. Stat., art. 4551b(3) (1960).

[99] See, e.g., *Lavin* v. *Dep't of Registration & Educ.*, 55 Ill. App. 304, 204 N.E. 2d 616 (1965); *Unger* v. *Ohio State Dental Bd.*, 142 Ohio St. 67, 26 Ohio Op. 256, 49 N.E. 2d 932 (1943); In re Lytton, 138 Ohio St. 625, 37 N.E. 2d 544 (1941).

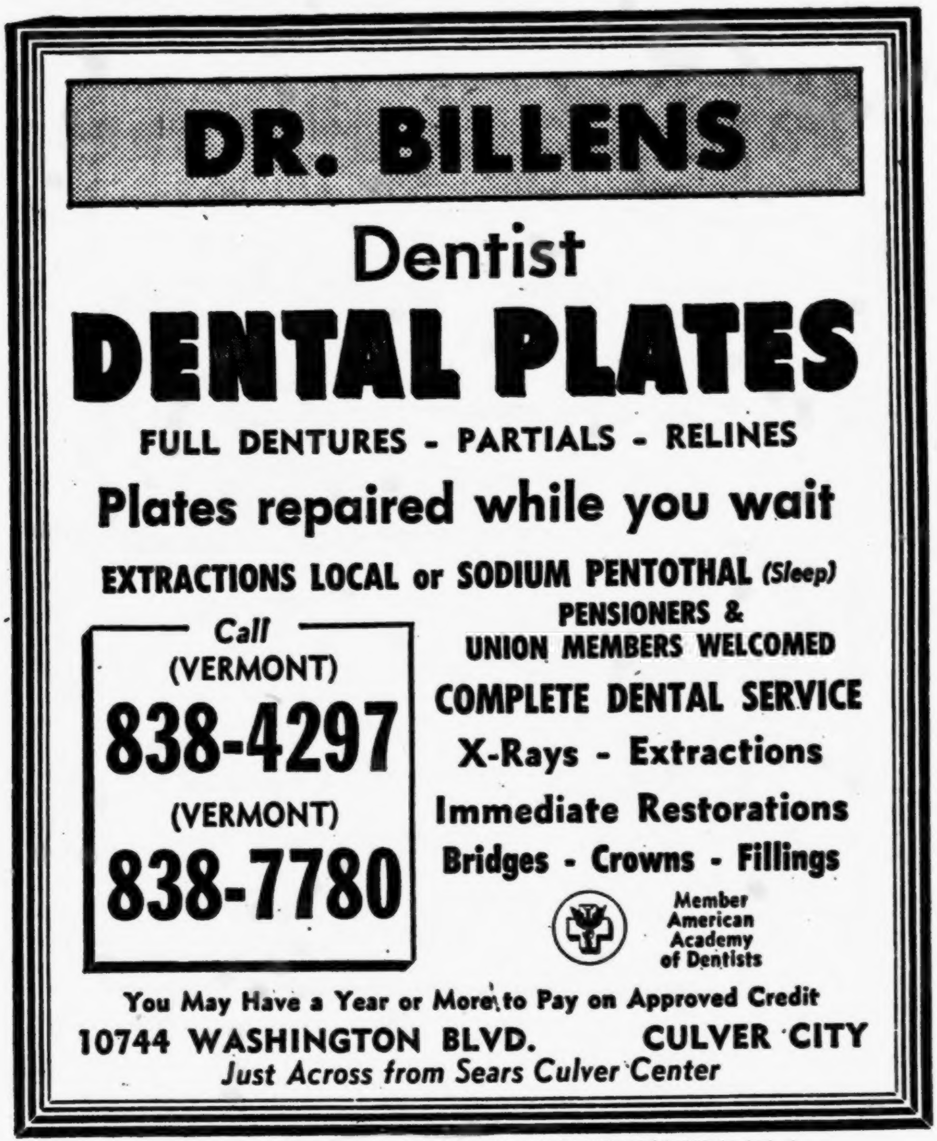
[100] *People* v. *Gurevich*, 191 Misc. 338, 75 N.Y.S. 2d 919 (1947), aff'd 274 App. Div. 767, 81 N.Y.S. 2d 138 (1948).

[101] See ch. 2, § B.3. supra.

[102] See, e.g., N.Y. Educ. Law, § 6612(11).

Supplement 1

Excerpts from Yellow Pages of Los Angeles Telephone Directories



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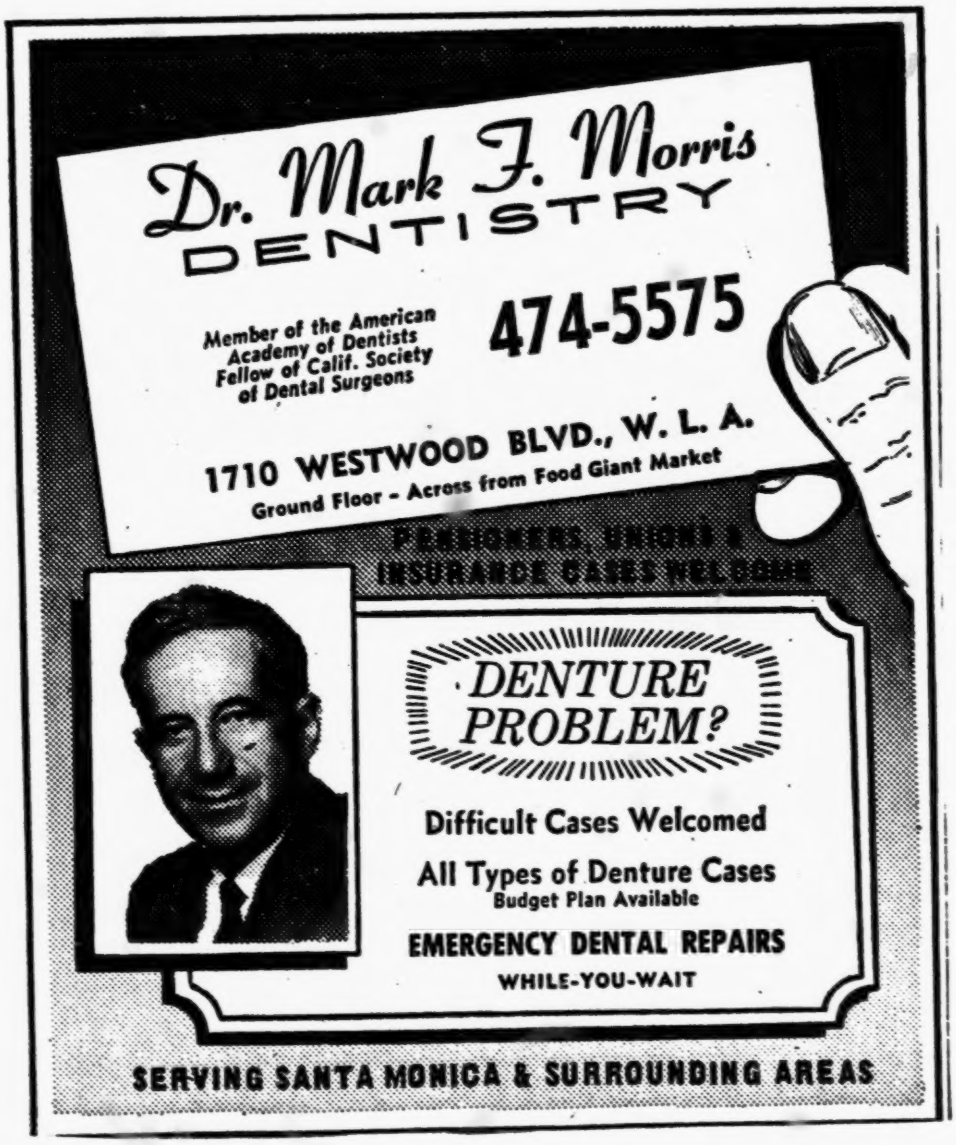

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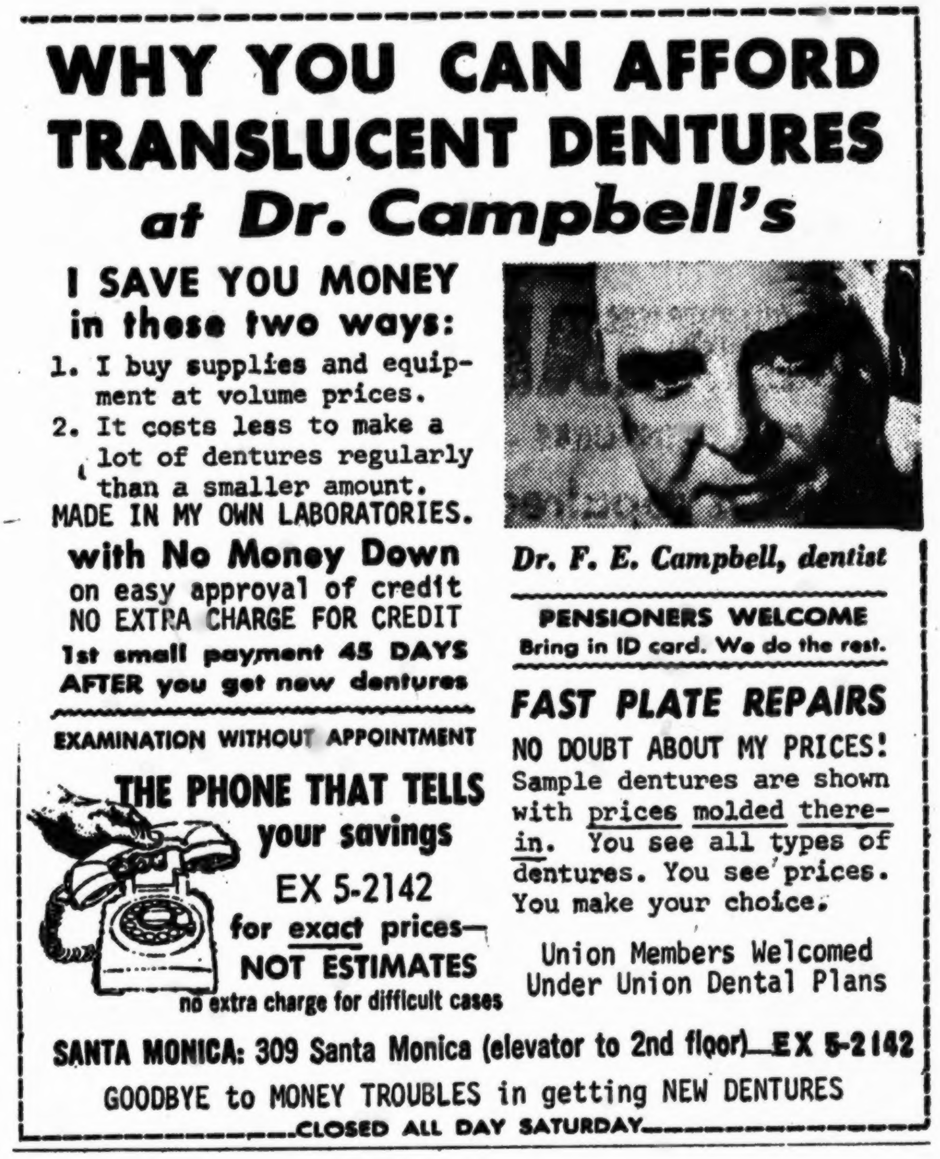

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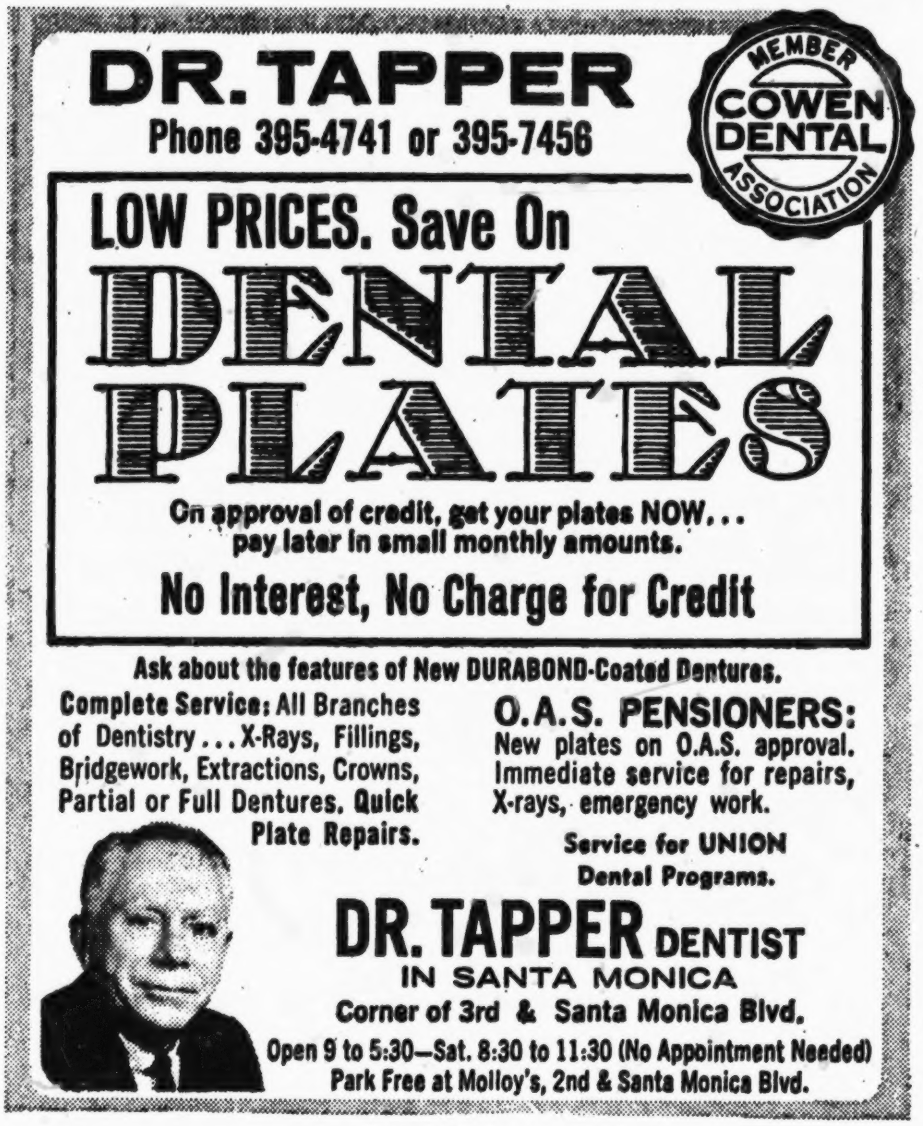

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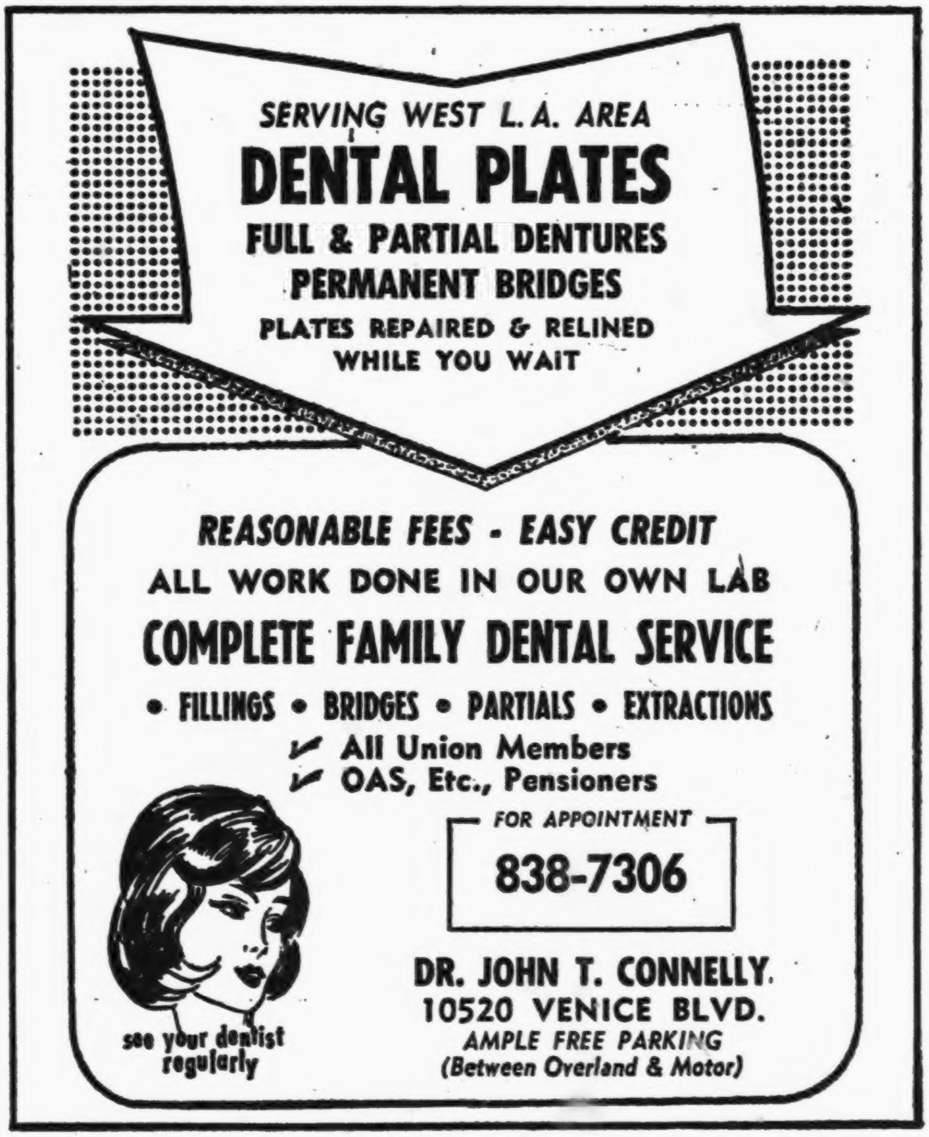

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Supplement 2

Statutory citations for appendixes 19–23

State	Dental Practice Act	Dental Hygiene Practice Act (if separate from Dental Practice Act)
Alabama	Code, title 46, ch. 5, §§ 120(1)–120(37).	
Alaska	Comp. Laws, §§ 35-3-56—35-3-60cc.	
Arizona	Rev. Stat., §§ 32-1201—32-1269.	§§ 32-1281—32-1292.
Arkansas	Stat., §§ 72-534—72-570	
California	Bus. & Prof. Code, §§ 1600-1725.	Bus. & Prof. Code, §§ 1740-1752.
Colorado	Rev. Stat. §§ 42-1-1—42-1-33	
Connecticut	Gen. Stat., §§ 20-103—20-126	
Delaware	Code, title 24, §§ 1101-1181	
District of Columbia	Code, title 2, §§ 301-331	
Florida	Stat., §§ 466.01-466.58	
Georgia	Code, §§ 84-701—84-732	
Hawaii	Rev. Laws, §§ 61-1—61-22	§§ 62-1—62-7.
Idaho	Code, §§ 54-901—54-933	
Illinois	Rev. Stat., ch. 91, §§ 56a-72h	
Indiana	Stat., §§ 63-501—63-526	§§ 63-527—63-544.
Iowa	Code, §§ 153.1-153.26	
Kansas	Stat., §§ 65-1421—65-1461	
Kentucky	Rev. Stat., §§ 313.010-313.990	
Louisiana	Rev. Stat., title 37, §§ 751-790	
Maine	Rev. Stat., ch. 73, §§ 1-22	Ch. 73, §§ 23-27.
Maryland	Code, art. 32, § 1-25A	Art. 32, §§ 16-34.
Massachusetts	Gen. Laws, ch. 112, §§ 43-53	
Michigan	Stat., §§ 14.629(1)-14.629(21)	
Minnesota	Stat., §§ 150.01-150.13	§§ 150.14-150.17.
Mississippi	Code §§ 8746-8775-19	
Missouri	Stat. §§ 332.010-332.390	§§ 332.100-332.580.
Montana	Rev. Codes, §§ 66-901—66-925	
Nebraska	Rev. Stat., §§ 71-183—§ 71-193.12.	
Nevada	Rev. Stat., tit. 54, §§ 631.010—631.400.	
New Hampshire	Rev. Stat., §§ 317:1-317:30	
New Jersey	Stat., tit. 45, §§ 6-1—6-47	
New Mexico	Stat., §§ 67-4-1—67-4-34	
New York	Educ. L., §§ 6601-6616	

Statutory citations for appendixes 19–23—Continued

State	Dental Practice Act	Dental Hygiene Practice Act (if separate from Dental Practice Act)
North Carolina	Gen. Stat., §§ 90–22—90–48	§§ 90–221—90–233.
North Dakota	Century Code, §§ 43–28–01—43–28–26.	§§ 43–20–01—43–20–11.
Ohio	Rev. Code, §§ 4715.02–4715.99	
Oklahoma	Stat., title 59, §§ 327.1–327.52	
Oregon	Rev. Stat., title 52, ch. 679	Title 52, ch. 680.
Pennsylvania	Stat., title 63, ch. 3	
Rhode Island	Gen Laws, §§ 5–31–1—5–31–21	
South Carolina	Code, §§ 56–501—56–636	
South Dakota	Code, §§ 27.0601–27.0616	
Tennessee	Code, title 63, ch. 5	
Texas	Rev. Civ. Stat., art. 4543–4551d	Art. 4551e, §§ 1–20.
Utah	Code, title 58, ch. 7	Title 58, ch. 8.
Vermont	Stat., title 26, ch. 13	
Virginia	Code, title 54, ch. 8	Title 54, ch. 8.1.
Washington	Rev. Code, title 18, ch. 18.32	Title 18, ch. 18.29.
West Virginia	Code, ch. 30, art. 4	
Wisconsin	Stat., ch. 152	
Wyoming	Stat., title 33, ch. 15	

Appendix 19

Licensing agencies for dentists

State	Name of agency	Relation to department of State government	Composition of agency		Method of appointment		Other occupations licensed by agency
			Dentists (and others)	Faculty disqualification	By Governor (or other)	Recommendation of dental society	
Alabama	Board of Dental Examiners.		5	X	Vote of licensed dentists.	Vote of licensed dentists.	Dental hygiene.
Alaska	do		5		X	X	Do.
Arizona	State Dental Board		5		X	X	Do.
Arkansas	State Board of Dental Examiners.		5	X	X	X	Do.
California	Board of Dental Examiners.	Department of Professional and Vocational Standards.	[1]7		X	X	Do.
Colorado	State Board of Dental Examiners.	Division of Registration Secretary of State.	5		X	X	Do.
Connecticut	Dental Commission	State Department of Health.	5		X	X	Do.
Delaware	State Board of Dental Examiners.		5	X	X	X	Do.
District of Columbia.	Board of Dental Examiners.	Department of Occupations and Professions.	5	X	Board of Commissioners.	X	Do.

Licensing agencies for dentists—Continued

State	Name of agency	Relation to department of State government	Composition of agency		Method of appointment		Other occupations licensed by agency
			Dentists (and others)	Faculty disqualification	By Governor (or other)	Recommendation of dental society	
Florida	State Board of Dental Examiners.	....	7	....	X	X	Dental hygiene. Laboratory operators.
Georgia	Board of Dental Examiners.	Secretary of State, Joint-Secretary, State Education Board.	7	X	X	X	Dental hygiene.
Hawaii	.....do	Department of Regulatory Agencies.	7	X	X	X	Do.
Idaho	Board of Dental Examiners; Occupational License Bureau.	Department of Law Enforcement.	5	X	Department Head.	X	Do.
Illinois	Dental Examining Committee.	Department of Registration and Education.	7	X	X	X	Dental hygiene. Specialists.
Indiana	State Board of Dental Examiners.	....	5	....	X	X	Dental hygiene.
Iowa	Board of Dental Examiners.	State Department of Health.	5	X	X	X	Do.
Kansas	Dental Board	....	3	....	Vote of Society.	Vote of Society.	Dental hygiene. Specialists.

Kentucky	State Board of Dental Examiners.	....	7	X	X	X	Do.
Louisiana	State Board of Dentistry.	....	7	X	X	X	Dental hygiene.
Maine	Board of Dental Examiners.	....	5	....	X	X	Do.
Maryland	State Board of Dental Examiners.	....	6	X	X	X	Do.
Massachusetts	Board of Dental Examiners.	Department of Registration.	5	....	X	X	Dental hygiene, dental interns.
Michigan	State Board of Dentistry.	Department of Licensing and Regulation.	7	X	X	X	Dental hygiene. Specialists.
Minnesota	State Board of Dental Examiners.	....	5	....	X	X	Dental hygiene.
Mississippi	....do	....	5	X	X	X	Do.
Missouri	Dental Board	Department of Education.	5	X	X	X	Dental hygiene. Specialists.
Montana	State Board of Dental Examiners.	....	5	....	X	X	Dental hygiene.
Nebraska	Board of Examiners in Dentistry.	State Health Department.	6	....	Board of Health.	X	Do.
Nevada	State Board of Dental Examiners.	....	7	X	X	X	Dental hygiene. Specialists.
New Hampshire	State Dental Board	....	3	X	X	X	Dental hygiene.

Licensing agencies for dentists—Continued

State	Name of agency	Relation to department of State government	Composition of agency		Method of appointment		Other occupations licensed by agency
			Dentists (and others)	Faculty disqualification	By Governor (or other)	Recommendation of dental society	
New Jersey	State Board of Dentistry.	Division of Professional Boards; Department of Law and Public Safety.	8	....	X	X	Dental hygiene, interns, residents, teachers.
New Mexico	State Board of Dental Examiners.	....	5	....	X	X	Dental hygiene.
New York	.....do	Office of Professional Education; Board of Regents.	11	....	Board of Regents.	X	Do.
North Carolina	.....do	....	6	....	Vote of society.	Vote of society.	Do.
North Dakota	.....do	....	5	....	X	X	Do.
Ohio	State Dental Board	....	5	....	X	X	Do.
Oklahoma	Board of Governors of Registered Dentists.	....	8	....	Vote of society.	Vote of society.	Dental hygiene. Specialists.
Oregon	State Board of Dental Examiners.	....	5	....	X	X	Dental hygiene.
Pennsylvania	State Dental Council and Examining Board.	Department of State	[2] 7	X	X	X	Dental hygiene, Dental technicians.

Rhode Island	Board of Examiners in Dentistry.	Division of Professional Regulation, Department of Health.	[1]3		Department head.	X	Dental hygiene.
South Carolina	State Board of Dental Examiners.		5		X	X	Dental hygiene. Dental lab technicians. Specialists.
South Dakota	do.		5		X	X	Dental hygiene.
Tennessee	do.		6	X	X	X	Dental hygiene. Specialists.
Texas	do.		6	X	X	X	Dental hygiene.
Utah	do.	Department of Registration.	5	X	Department head.	X	Do.
Vermont	Board of Dental Examiners.		5		X	X	Do.
Virginia	State Board of Dental Examiners.	State Board of Education.	6	X	X	X	Do.
Washington	do.	Division of Professional Licensing, Department of Motor Vehicles.	5	X	X	X	Do.
West Virginia	Board of Dental Examiners.		5	X	X	X	Dental hygiene. Specialists.
Wisconsin	State Board of Dental Examiners.		5	X	X	X	Dental hygiene.
Wyoming	do.		3		X	X	Do.

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[1] 1 public. [2] 2 public.

Appendix 20

Qualifications for licensure of dentists [1]

State	Education				Approval of dental schools		Examination		
	High school	College	Professional	Curriculum requirements specified	ADA accreditation	Other criteria specified	Written	Clinical, practical, or other	Preservation of materials
Alabama	....	....	[2] X	....	X	....	X	X	X
Alaska	....	....	X	....	....	....	X	X	X
Arizona	....	....	[2] 4	....	X	....	X	X	X
Arkansas	....	....	X	X	X	....	X	X	
California	....	....	X	X	X	X [3]	X	X	
Colorado	....	....	X	....	X	....	X	X	
Connecticut	....	....	X	....	X	....	X	X	
Delaware	X	2	4	....	....	....	X	X	
District of Columbia	....	....	X	....	....	....	X	X	
Florida	....	....	X	....	X	....	X	X	X
Georgia	X	2	X	....	....	....	X	X	X
Hawaii	....	....	X	....	....	....	X	X	
Idaho	....	....	[2] 4	....	....	....	X	X	
Illinois	X	2	4	....	....	....	X	X	X
Indiana	....	....	[2] 4	....	X	....	X	X	X
Iowa	....	....	X	....	....	....	X	X	

Kansas..........	....	....	[2]X	....	X	....	X	X	X
Kentucky........	....	....	X	....	X	....	X	X	X
Louisiana........	....	....	[2]X	....	X	....	X	X	
Maine...........	....	....	X	....	X	....	X	X	
Maryland........	....	....	X	....	X	....	X	X	
Massachusetts....	4	2	X	....	....	....	X	X	
Michigan.........	....	....	[2]X	....	....	X[4]	X	X	
Minnesota........	....	....	4	....	....	....	X	X	
Mississippi.......	X	....	X	....	....	....	X	X	
Missouri..........	....	....	[2]4	X	X	....	X	X	X
Montana.........	....	....	[2]X	....	....	(5)	X	X	X
Nebraska.........	X	X	X	....	X	....	X	X	
Nevada..........	....	....	4	....	....	....	X	X	
New Hampshire..	....	....	X	....	....	....	X	X	
New Jersey......	4	2	4	....	X	....	X	X	
New Mexico.....	....	....	X	....	X	....	X	X	
New York.......	....	2	4	....	X	....	X	X	
North Carolina...	....	....	[2]4	....	....	....	X	X	
North Dakota....	....	....	[2]4	....	....	....	X	X	
Ohio............	....	....	[2]4	....	....	....	X	X	
Oklahoma.......	....	....	X	....	X	....	X	X	
Oregon..........	4	2	4	....	....	....	X	X	
Pennsylvania.....	....	....	[2]4	X	X	....	X	X	
Rhode Island....	....	....	[2]X	....	X	....	X	X	X
South Carolina...	....	2	X	....	....	(5)	X	X	
South Dakota....	....	....	X	....	....	....	X	X	

See footnotes at end of table.

Qualifications for licensure of dentists [1]—Continued

State	Education				Approval of dental schools		Examination		
	High school	College	Professional	Curriculum requirements specified	ADA accreditation	Other criteria specified	Written	Clinical, practical, or other	Preservation of materials
Tennessee	....	....	X	....	....	....	X	X	
Texas	....	....	[2] 4	....	....	....	X	X	
Utah	4	....	4	....	X	....	X	X	
Vermont	....	....	....	....	X	....	X	X	
Virginia	....	....	[2] 4	....	X	....	X	X	X
Washington	....	....	X	....	....	....	X	X	
West Virginia	....	....	X	....	....	....	X	X	
Wisconsin	4	2	4	....	....	....	X	X	X
Wyoming	....	....	[2] 4	....	....	....	X	X	

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[1] Requirements of age and "good moral character" not recorded.

[2] No requirement of proof of attendance at college or of graduation from high school. The requirement of graduation from a recognized dental school implies high school graduation and some college education as part of the licensure requirements.

[3] Approval by State dental examining board in addition to ADA accreditation.

[4] School must be chartered and authorized to grant degree of doctor of dental surgery or doctor of dental medicine. Further, the school must annually give a full course of lectures in specified subjects. The school must have adequate physical facilities and must require 60 hours of college education from applicants for admission.

[5] Accreditation by the American Association of Dental Faculties.

Appendix 21

Disciplinary proceedings under dental practice acts

States	A. Grounds for suspension and revocation of licenses													B. Procedures for suspension and revocation of licenses							
														Powers of revoking body				Privileges of defendant			
	Malpractice or neglect of duty	Incompetence or inefficiency	Mental disability	Drug addiction or alcoholism	Physical disability	Conviction of felony	Misdemeanor involving moral turpitude	Unprofessional conduct	Abortion	Assisting unlicensed person to practice	False or fradulent statements	Improper advertising	Fee-splitting	Charges may also be brought by others	May call government attorney for representation	May administer oaths, issue subpoenas	May use injunction procedure	Entitled to notice of hearing	Entitled to copy of charges	Entitled to representation by counsel	Right to appeal to court
Alabama	X	......	......	X	......	X	X	X	......	X	X	X	X	......	X	X	X	X	X	......	X
Alaska	X	X	X	X	X	X	X	X	......	X	X	X	......	X	......	X	X	X	X	X	X
Arizona	......	......	X	X	X	X	X	X	......	......	X	X	......	X	X	X	X	X	X	X	X
Arkansas	X	X	X	X	......	X	X	X	......	......	X	X	......	X	......	X	......	X	X	X	
California	X	X	X	X	X	X	X	X	......	X	......	X	......	......	X	X	X	X	X	X	
Colorado	X	X	......	X	X	X	X	X	......	X	......	X	......	......	X	X	......	X	X	X	X
Connecticut	X	X	......	X	X	X	X	X	......	X	......	X	......	X	X	X	......	X	X	X	X
Delaware	......	X	......	X	......	X	X	X	......	X	......	X	......	......	......	X	X	X	......	......	
District of Columbia	......	X	......	X	......	X	X	X	......	X	X	X	......	......	......	X	X	......	X	......	
Florida	X	X	X	X	......	......	X	X	......	X	X	X	......	X	......	X	X	X	X	......	X
Georgia	X	X	......	X	......	X	X	X	......	X	X	X	......	X	X	X	X	X	X	X	X

Disciplinary proceedings under dental practice acts

States	A. Grounds for suspension and revocation of licenses													B. Procedures for suspension and revocation of licenses							
														Powers of revoking body				Privileges of defendant			
	Malpractice or neglect of duty	Incompetence or inefficiency	Mental disability	Drug addiction or alcoholism	Physical disability	Conviction of felony	Misdemeanor involving moral turpitude	Unprofessional conduct	Abortion	Assisting unlicensed person to practice	False or fradulent statements	Improper advertising	Fee-splitting	Charges may also be brought by others	May call government attorney for representation	May administer oaths, issue subpoenas	May use injunction procedure	Entitled to notice of hearing	Entitled to copy of charges	Entitled to representation by counsel	Right to appeal to court
Hawaii				X		X		X		X	X	X	X			X	X	X	X	X	
Idaho	X			X				X		X	X	X		X	X	X		X	X	X	X
Illinois			X	X		X		X		X	X	X	X			X		X		X	X
Indiana			X	X		X	X	X		X	X	X		X	X				X		
Iowa		X		X	X	X	X	X		X	X	X	X		X	X		X	X	X	X
Kansas	X	X		X		X	X	X		X	X	X	X		X	X	X	X	X	X	X
Louisiana	X			X			X	X		X	X	X	X	X		X	X	X	X	X	X
Maine				X		X	X	X			X	X		X	X	X	X	X	X	X	
Maryland			X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	
Massachusetts	X		X	X		X		X			X	X						X	X	X	X
Michigan	X	X		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X
Minnesota				X		X	X	X		X	X	X	X		X	X	X	X	X	X	X
Mississippi	X	X				X	X	X		X	X	X		X		X		X	X	X	X
Missouri				X		X	X	X		X	X	X		X	X	X	X	X	X	X	

Montana	...	...	...	X	...	X	X	X	...	...	X	X	...	X	X	X	X	X	X	...	X
Nebraska	...	...	...	X	...	...	X	X	...	...	X	X	X	X	X	X	...	X	X	...	X
Nevada	X	X	...	X	...	X	X	X	...	X	X	X	X	X	...	X	X	X	X	X	X
New Hampshire	...	...	...	...	...	...	X	X	...	...	...	X	...	...	...	X	X	X	X	...	...
New Jersey	X	X	...	X	...	X	X	...	...	X	X	X	...	X	...	X	X	X	X	X	...
New Mexico	...	...	X	X	...	X	X	X	...	X	X	X	...	X	X	X	X	X	X	X	X
New York	...	...	...	...	...	X	X	X	...	X	X	X	...	X	X	X	X	X	X	X	X
North Carolina	X	X	...	X	...	X	...	...	...	X	X	X	...	X	...	X	X	X	X	X	X
North Dakota	X	X	X	X	...	...	X	X	...	X	X	X	X	X	X	X	X	X	X	X	X
Ohio	...	...	...	X	...	X	X	X	...	...	...	X	...	...	X	X	X	X	X	X	X
Oklahoma	X	X	X	X	X	X	X	X	...	X	X	X	X	...	...	X	...	X	X	X	
Oregon	...	...	X	X	...	X	X	X	...	X	X	X	...	X	...	...	...	X	X	...	X
Pennsylvania	X	X	...	X	...	X	X	X	...	...	X	X	...	...	...	...	...	X	X	X	X
Rhode Island	...	...	...	X	...	X	X	X	...	X	X	X	...	X	X	X	...	X	X	X	X
South Carolina	...	X	X	X	...	X	X	X	X	X	X	X	...	...	...	X	X	X	X	X	X
South Dakota	...	...	...	X	...	X	X	X	...	X	X	X	...	...	...	...	...	...	X	X	X
Tennessee	...	...	...	X	...	X	X	X	...	X	X	X	X	...	X	X	X	X	X	X	X
Texas	X	X	X	X	X	X	X	X	...	X	X	X	...	X	...	X	X	X	X	...	X
Utah	X	X	...	X	...	X	X	X	...	X	X	X	X	X	...	X	...	X	X	...	X
Vermont	...	...	...	X	...	...	...	X	...	...	...	X	...	...	...	...	...	X	X	...	
Virginia	X	X	...	X	...	X	X	X	X	X	X	X	...	X	...	X	X	X	X	X	X
Washington	...	...	...	X	...	...	...	...	...	X	X	X	X	...	...	X	...	X	X	...	X
West Virginia	...	...	...	...	...	X	X	X	X	...	X	X	...	...	...	...	X	...	...	...	
Wisconsin	...	...	X	X	X	...	X	X	...	...	X	X	...	X	X	X	...	X	X	X	
Wyoming	...	...	...	...	...	X	X	X	...	...	...	X	...	...	X	X	X	X	X	X	X

Appendix 22

Recognition of dental licenses of other States

State	Dentists								Dental hygienists	
	State Board approval of dental school required	Equivalent education required	Years of practice required	Clinical or practical examination required	Only by reciprocity	Must apply in person	National Board examination in lieu of State written examination [1]	Mandatory or discretionary	Endorsement or reciprocity	Mandatory or discretionary
Alabama	X	X	5	X	X	....	....	D	....	
Alaska	X	X	....	....	X	....	X	M	X	M
Arizona	....	....	....	....	....	....	X	....	....	
Arkansas	X	X	5	....	X	....	....	D	X	D
California	....	....	....	....	....	....	....	....	....	
Colorado	....	....	....	....	....	....	X	....	....	
Connecticut	X	X	5	X	X	....	X	D	X	D
Delaware	X	X	5	X	X	X	....	D	X	D
District of Columbia.	X	X	5	....	....	....	X	D	X	D
Florida	....	....	....	....	....	....	....	....	....	
Georgia	X	X	....	....	....	....	X	D	....	
Hawaii	....	....	....	....	....	....	....	....	....	
Idaho	....	....	....	....	....	....	....	....	....	
Illinois	X	X	5	X	X	X	....	D	....	

Indiana	X	X	....	....	X	X	X	D	X	D
Iowa	X	X	....	X	X	X	X	D	X	D
Kansas	X	X	5	....	X	X	....	D	X	D
Kentucky	X	X	5	....	X	X	....	D[u]	X[u]	D[u]
Louisiana	X	X	5	....	X	X	....	D[u]	X	D[u]
Maine	X	X	5	....	X	....	X	D	X	D
Maryland	....	....	....	....	....	....	....	....	....	
Massachusetts	X	X	5	....	....	....	X	D	....	
Michigan	....	....	....	....	....	....	....	....	....	
Minnesota	X	X	....	X	X	X	X	D	X	D
Mississippi	X	X	5	....	X	....	....	D	X	D
Missouri	X	X	5	X	X	....	....	D	X	D
Montana	X	X	5	X	X	....	....	D	X	D
Nebraska	X	X	....	X	....	....	....	D	X	D
Nevada	....	....	....	....	....	....	X	....	....	
New Hampshire	X	X	5	....	X	....	....	D	X	D
New Jersey	X	X	5	....	X	....	....	D	....	
New Mexico	X	X	5	....	X	....	....	M	X	D
New York	X	X	6	....	....	....	....	D	X	D
North Carolina	X	X	5	X	....	....	....	D	....	
North Dakota	X	X	5	X	X	....	....	D	X	D
Ohio	X	X	5	....	X	....	....	D[u]	X	D[u]
Oklahoma	X	X	5	....	X	....	....	D	....	
Oregon	X	X	5	X	....	....	X	D	....	
Pennsylvania	X	X	....	....	X	....	X	D	X	D
Rhode Island	....	....	....	....	....	....	....	....	....	
South Carolina	X	X	5	....	X	....	....	D	X	

Footnotes at end of table.

Recognition of dental licenses of other States—Continued

State	Dentists								Dental hygienists	
	State Board approval of dental school required	Equivalent education required	Years of practice required	Clinical or practical examination required	Only by reciprocity	Must apply in person	National Board examination in lieu of State written examination [1]	Mandatory or discretionary	Endorsement or reciprocity	Mandatory or discretionary
South Dakota	X	X	....	X	X	X	X	D	X	D
Tennessee	X	X	5	....	....	....	X	D	X	D
Texas	X	X	....	....	....	....	....	D	....	
Utah	....	....	....	....	....	....	....	....	....	
Vermont	X	X	5	....	....	....	....	D	X	D
Virginia	X	X	5	....	....	....	....	D	X	D
Washington	X	X	5	X	X	X	....	D	X	D
West Virginia	X	X	2	....	....	....	....	D	X	D
Wisconsin	X	X	5	X	X	....	....	D	X	D
Wyoming	X	X	....	....	X	....	....	D	X	D

---

[a] Unanimous vote of Board required.

[1] In the States indicated the written or practical examinations or both may be satisfied by passing the National Board examination.

Appendix 23

Qualifications for licensure of dental hygienists and approval of schools of dental hygiene

State	Qualifications						Approval of schools	
	Personal				Educational		State dental board approved	ADA accreditation
	Age	Sex	Citizenship	Good character	High school	Professional school (2 years)		
Alabama	19	....	X	X	....	(1)	X	
Alaska	18	....	....	X	X	X	X	X
Arizona	18	....	X	X	....	X	X	
Arkansas	....	....	....	X	....	X	X	
California	18	....	....	X	....	X	X	
Colorado	....	....	....	X	....	X	X	
Connecticut	....	....	....	....	X	X	....	X
Delaware	18	F	X	X	....	X	X	
District of Columbia	18	....	X	X	....	(2)	X	
Florida	....	....	X	X	....	X	X	
Georgia	19	....	....	X	....	X	X	
Hawaii	18	....	....	X	X	X	X	
Idaho	....	....	X	X	X	X	X	
Illinois	....	....	X	....	X	X	X	
Indiana	....	F	X	X	....	(3)	X	

See footnotes at end of table.

Qualifications for licensure of dental hygienists and approval of schools of dental hygiene—Continued

State	Qualifications						Approval of schools	
	Personal				Educational		State dental board approved	ADA accreditation
	Age	Sex	Citizenship	Good character	High school	Professional school (2 years)		
Iowa	....	....	X	....	2	X	X	
Kansas	21	....	X	X	....	X	X	
Kentucky	19	....	X	X	X	X	X	
Louisiana	18	....	....	X	....	(2)	X[4]	X
Maine	18	....	....	X	X	X	X	
Maryland	19	....	....	X	....	X	X	
Massachusetts	19	....	....	X	....	(2)	X	
Michigan	....	....	....	....	X	X	X	
Minnesota	....	F	....	X	X	X	X	
Mississippi	20	....	X	X	X	X	X	
Missouri	20	....	X	X	X	X	X	
Montana	....	....	....	....	X	X	X	
Nebraska	....	....	....	X	X	X	X	
Nevada	18	....	X	X	X	X	X	
New Hampshire	18	....	....	X	....	X	X	
New Jersey	18	....	X	X	X	X	X	
New Mexico	18	....	X	X	X	X	X	
New York	....	....	X	X	X	X	X	

North Carolina	19	....	X	X	X	X	X		
North Dakota	....	F	....	X	X	X	X[5]		(5)
Ohio	18	....	....	X	X	X	X		
Oklahoma	18	....	....	X	X	X	X	X	
Oregon	18	....	....	X	X	X	X		
Pennsylvania	19	....	....	X	X	X	X		
Rhode Island	18	F	....	X	....	X	X		
South Carolina	....	....	....	X	2	X	X		
South Dakota	....	F	....	X	X	X	X		
Tennessee	....	....	X	....	....	X	X		
Texas	20	....	X	....	X	X	X		
Utah	19	F	X	X	....	X	X		
Vermont	18	....	....	X	....	X	X	X	
Virginia	19	....	X	X	....	X	X		
Washington	19	....	....	X	....	X	....		
West Virginia	18	....	....	X	X	X	X		
Wisconsin	....	....	X	....	X	X	X		
Wyoming	20	....	....	X	X	X	X		

NOTE.—Blanks signify absence of statutory provision on that point.

[1] 2 years' experience may be substituted for graduation from a professional school.

[2] Only 1 year curriculum required.

[3] Requires 2 years of school or 1 year of school and (*a*) 1 year of internship, or, (*b*) 1 year of teaching, or, (*c*) 5 years of actual practice.

[4] School must be affiliated with a reputable dental school.

[5] Board has discretion until July 1, 1968, to license graduates of non-ADA accredited schools.

Appendix VIII

STATISTICAL TABULATIONS

The following statistical tabulations of data on physicians were prepared for use by the Commission. Because they include information not readily available heretofore, they are being published in this appendix as raw data for those working in the health manpower field. More recent data current to the beginning of January 1968, should soon be available through the American Medical Association.

Source of Data

The following tables were taken from data compiled by the American Medical Association. They were prepared for the Commission in April 1967, from data current as of January 2, 1967.

The systems analysis and programing for the Commission were done by Gary R. Norris, Cummins Engine Co. Technical assistance was provided by Christ N. Theodore and Gerald E. Sutter of the AMA staff. The computer tabulations were made on an IBM 7074 at the Bureau of Labor Statistics.

Analysis

The tables are constructed as matrices and are so arranged that a breakout on every physician is given in each table. It is, therefore, possible to verify that all physicians (302, 540) are counted in each instance.

The AMA derives its data in two ways: From physicians themselves and from outside sources. The outside sources include medical schools, State licensing agencies, hospitals, and the examiners for the national board and specially boards. Information from the individual physician is obtained through a questionnaire mailed annually to each doctor by the AMA. The response is unusually good because professional and economic incentives exist for answering the questions. In addition, the AMA conducts mail followups. Finally, local medical societies and drug detail men aid in keeping the list current.

In general, those data coming from outside sources are more reliable than those coming from the physicians themselves, since not all the latter respond, nor do they interpret the AMA questionnaire identically. Despite these limitations, the data are the best the Commission was able to find.

The sources of data are as follows:

Outside sources

Medical school
Year in which graduated
Year of national boards
Year in which licensed
Information concerning specialty boards
Information on interns and residents

Individual physician

Location of residence
Sex
Military service
Additional degrees
Visa
Group practice
Nature of professional medical activity
Detail of professional activities
Source of professional income
Principal employer

Terms

The following abbreviations are used:

AMG—A graduate of an American or Puerto Rican medical school (regardless of the graduate's nationality).

CMG—A graduate of a Canadian medical school (regardless of nationality).

FMG—A graduate of a medical school in any country other than the United States, Puerto Rico, or Canada.

CPA—Classification of professional activities, the code by which the AMA tabulates much of the data derived from its annual questionnaire. It has four parts, coinciding with the last four elements listed above under individual physician.

The tables dealing with Foreign Medical Graduates have been condensed so that countries are grouped into regions:

North America: United States, Puerto Rico, and Canada.

Latin America: All countries variously identified as being Latin America, Central America, or South America.

Europe: Eastern and western Europe, Soviet Union, Ireland, and Iceland.

Africa: All countries on that continent.

Near East: Aden, Afghanistan, Ceylon, Cyprus, Greece, India, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Nepal, Pakistan, Saudi

Arabia, Syrian Arab Republic, Turkey, United Arab Republic, Yemen.

Eastern Asia: Australia, Burma, Cambodia, Republic of China, China (Mainland), Indonesia, Japan, Korea, Laos, Malaysia, New Zealand, Philippines, Singapore, Thailand, Vietnam.

Location of Additional Information

The tables have been broken down into sections which group similar elements of information. In some instances, additional data not included in this summary were obtained. These data, as well as the computer tapes from which this published information was compiled, are stored with the Department of Health, Education, and Welfare. Information concerning them may be obtained by writing to the National Center for Health Statistics, Division of Vital Statistics, Department of Health, Education, and Welfare.

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SECTION A—MAJOR CATEGORIES

Explanation: Table 1 comprises the basic matrix against which all other tables were compared. In every instance the Subtotals from these other tabulations will be found to equal one of these categories from table 1.

TABLE 1. *Total number of physicians as arranged by residence and type of employer*

Place of residence	Employer		Total
	Federal	Non-Federal	
I. Active in:			
United States	22,668	257,647	280,315
U.S. Possessions	192	2,032	2,224
Foreign countries	3,318	1,982	5,300
Subtotal	26,178	261,661	287,839
II. Inactive in:			
United States	0	13,149	13,149
U.S. Possessions	0	63	63
Foreign countries	0	183	183
Subtotal	0	13,395	13,395
III. Address unknown	0	1,306	1,306
IV. Total	26,178	276,362	302,540

SECTION B—PRIMARY SPECIALTIES

Explanation: Tables 2–5 correspond to CPA codes A, B, C, and D respectively of the AMA classification. Codes B, C, and D (corresponding to tables 3–5) are derived from information obtained directly from the physician. Code A (corresponding to table 2) is derived from code B.

The doctor himself supplies the information concerning his specialty. There is little verification of this, whereas with section D the information is provided by an outside source (the record of the board examination).

Additional data: Each of these tables contains a "Federal", "Non-Federal", and "Subtotal" breakout for each specialty—with separate counting for physicians in "U.S. Possessions" and in "Foreign countries".

Tables not included: Another table was obtained by cross-referencing physicians by State of residence and detail of professional activities (i.e., columns and headings were similar to table 3).

Table 2. *National total of physicians as arranged by primary specialty and nature of professional medical activity*

Primary specialty	Nature of professional medical activity					Total
	Direct care of patients, private practice	Direct care of patients not in private practice	Medical related activities	Nonmedical activities	Fellow or other graduate trainee	
I. Active:						
A. General practice	63, 269	5, 232	377	0	4	68, 882
B. Medical specialties:						
Allergy	839	49	27	0	19	934
Cardiovascular disease	1, 070	397	352	0	200	2, 019
Dermatology	2, 709	663	203	0	38	3, 613
Gastroenterology	387	149	88	0	64	688
Internal medicine	22, 825	12, 240	3, 770	0	705	39, 540
Pediatrics	9, 807	4, 601	1, 564	0	346	16, 318
Pulmonary diseases	353	657	171	0	29	1, 210
Subtotal	37, 990	18, 756	6, 175	0	1, 401	64, 322
C. Surgical specialties:						
Anesthesiology	6, 306	2, 167	451	0	64	8, 988
Colon and rectal surgery	614	26	3	0	2	645

TABLE 2. *National total of physicians as arranged by primary specialty and nature of professional medical activity*—Continued

Primary specialty	Nature of professional medical activity					Total
	Direct care of patients, private practice	Direct care of patients not in private practice	Medical related activities	Nonmedical activities	Fellow or other graduate trainee	
General surgery	17, 843	9, 200	939	0	153	28, 135
Neurological surgery	1, 323	642	170	0	22	2, 157
Obstetrics and gynecology	12, 747	3, 690	580	0	66	17, 083
Opthalmology	6, 762	1, 532	241	0	74	8, 609
Orthopedic surgery	5, 535	2, 021	210	0	64	7, 830
Otolaryngology	4, 150	1, 047	141	0	21	5, 359
Plastic surgery	899	253	33	0	12	1, 197
Thoracic surgery	1, 016	420	145	0	22	1, 603
Urology	3, 819	1, 144	153	0	40	5, 156
Subtotal	61, 014	22, 142	3, 066	0	540	86, 762
D. Psychiatry and neurology:						
Child psychiatry	391	367	114	0	75	947
Neurology	831	875	463	0	83	2, 252
Psychiatry	8, 590	8, 158	1, 761	0	145	18, 654
Subtotal	9, 812	9, 400	2, 338	0	303	21, 853

E. Other specialties:						
Aviation medicine	45	454	160	0	0	659
General preventive medicine	0	662	278	0	1	941
Occupational medicine	388	1, 175	150	0	1	1, 714
Pathology	2, 101	3, 004	3, 597	0	131	8, 833
Physical medicine and rehabilitation	334	600	155	0	26	1, 115
Public health	0	1, 256	361	0	2	1, 619
Radiology	5, 855	3, 526	571	0	79	10, 031
Subtotal	8, 723	10, 677	5, 272	0	240	24, 912
F. Unspecified / other	571	9, 555	3, 158	0	300	13, 584
Active subtotal	181, 379	75, 762	20, 386	0	2, 788	280, 315
II. Inactive	0	0	0	13, 395	0	13, 395
III. Overseas	1, 746	4, 885	876	0	17	7, 524
IV. Address unknown	0	0	0	1, 306	0	1, 306
V. Total	183, 125	80, 647	21, 262	14, 701	2, 805	302, 540

TABLE 3. *National total of physicians as arranged by*

Primary Specialty	Detail of professional activities			
	Full-time specialty practice	General practice with specialty interest	Intern	Resident or fellow
I. Active:				
A. General practice	42, 975	20, 602	42	626
B. Medical specialties:				
Allergy	841	0	0	32
Cardiovascular disease	1, 084	0	0	330
Dermatology	2, 723	0	0	473
Gastroenterology	389	0	0	127
Internal medicine	23, 099	0	1, 070	6, 408
Pediatrics	10, 094	0	367	2, 584
Pulmonary diseases	440	0	0	65
Subtotal	38, 670	0	1, 437	10, 019
C. Surgical specialties:				
Anesthesiology	6, 317	0	0	1, 187
Colon and rectal surgery	616	0	0	14
General surgery	17, 898	0	758	5, 937
Neurological surgery	1, 323	0	0	482
Obstetrics and gynecology	12, 792	0	30	2, 568
Ophthalmology	6, 776	0	0	1, 172
Orthopedic surgery	5, 546	0	0	1, 433
Otolaryngology	4, 159	0	0	733
Plastic surgery	899	0	0	196
Thoracic surgery	1, 019	0	0	229
Urology	3, 823	0	0	818
Subtotal	61, 168	0	788	14, 769

primary specialty and detail of professional activities

Detail of professional activities—Continued						
Other Full-time staff in hospital service	Full-time medical school faculty	Administrative medicine	Research	Retired	Not in practice	Total
4, 057	300	200	80	0	0	68, 882
31	17	4	9	0	0	934
255	191	32	127	0	0	2, 019
214	132	27	44	0	0	3, 613
83	54	9	26	0	0	688
5, 134	2, 188	561	1, 080	0	0	39, 540
1, 644	1, 088	188	353	0	0	16, 318
533	34	108	30	0	0	1, 210
7, 894	3, 704	929	1, 669	0	0	64, 322
1, 031	379	25	49	0	0	8, 988
11	1	3	0	0	0	645
2, 584	621	203	134	0	0	28, 135
183	134	7	28	0	0	2, 157
1, 111	418	74	90	0	0	17, 083
418	151	18	74	0	0	8, 609
639	155	39	18	0	0	7, 830
326	103	21	17	0	0	5, 359
69	30	2	1	0	0	1, 197
210	116	18	11	0	0	1, 603
360	119	17	19	0	0	5, 156
6, 942	2, 227	427	441	0	0	86, 762

TABLE 3. *National total of physicians as arranged by*

Primary Specialty	Detail of professional activities			
	Full-time specialty practice	General practice with specialty interest	Intern	Resident or fellow
I. Active—Continued				
D. Psychiatry and neurology:				
Child psychiatry	414	0	0	248
Neurology	835	0	0	568
Psychiatry	8, 843	0	0	3, 558
Subtotal	10, 092	0	0	4, 374
E. Other specialties:				
Aviation medicine	75	0	0	79
General preventive medicine	408	0	0	38
Occupational medicine	1, 433	0	0	16
Pathology	2, 486	0	118	2, 042
Physical medicine and rehabilitation	350	0	0	214
Public health	1, 011	0	0	33
Radiology	5, 874	0	0	1, 759
Subtotal	11, 637	0	118	4, 181
F. Unspecified/other	703	0	7, 768	436
Active subtotal	165, 245	20, 602	10, 153	34, 405
II. Inactive	0	0	0	0
III. Overseas	1, 763	200	116	342
IV. Address unknown	0	0	0	0
V. Total	167, 008	20, 802	10, 269	34, 747

primary specialty and detail of professional activities—Continued

Detail of professional activities—Continued						
Other Full-time staff in hospital service	Full-time medical school faculty	Adminis-trative medicine	Research	Retired	Not in practice	Total
167	88	24	6	0	0	947
387	330	16	116	0	0	2, 252
4, 452	919	591	291	0	0	18, 654
5, 006	1, 337	631	413	0	0	21, 853
346	6	93	60	0	0	659
144	171	140	40	0	0	941
93	39	102	31	0	0	1, 714
2, 861	942	33	351	0	0	8, 833
392	126	24	9	0	0	1, 115
157	114	248	56	0	0	1, 619
1, 853	472	27	46	0	0	10, 031
5, 846	1, 870	667	593	0	0	24, 912
1, 501	947	1, 074	1, 155	0	0	13, 584
3, 246	10, 385	3, 928	4, 351	0	0	280, 315
0	0	0	0	10, 141	3, 254	13, 395
4, 222	305	338	238	0	0	7, 524
0	0	0	0	0	1, 306	1, 306
35, 468	10, 690	4, 266	4, 589	10, 141	4, 560	302, 540

TABLE 4. *National total of physicians as arranged*

Primary specialty	Source of professional income		
	Group medical practice	Fee for service only: individual practice	Fee for service only: group or partnership practice
I. Active:			
A. General Practice	6, 061	47, 850	4, 261
B. Medical specialties:			
Allergy	88	587	68
Cardiovascular disease	157	645	52
Dermatology	264	2, 019	124
Gastroenterology	76	231	26
Internal medicine	4, 789	13, 531	1, 346
Pediatrics	2, 064	5, 746	1, 000
Pulmonary diseases	28	214	15
Subtotal	7, 466	22, 973	2, 631
C. Surgical specialties:			
Anesthesiology	2, 131	3, 417	526
Colon and rectal surgery	48	491	45
General surgery	2, 971	11, 908	1, 422
Neurological surgery	266	803	177
Obstetrics and gynecology	2, 387	7, 973	1, 649
Ophthalmology	731	5, 089	477
Orthopedic surgery	1, 358	3, 173	682
Otolaryngology	583	3, 105	232
Plastic surgery	70	685	80
Thoracic surgery	181	608	108
Urology	674	2, 446	491
Subtotal	11, 400	39, 698	5, 889

by primary specialty and source of professional income

Source of professional income—Continued						
Fee for service and part-time salary: individual practice	Fee for service and part-time salary: group or partnership practice	Full-time salary, but some fee for service: individual practice	Full-time salary, but some fee for service: group or partnership practice	Full-time salary only	Other	Total
4, 571	531	321	49	5, 238	0	68, 882
83	14	12	4	78	0	934
195	25	144	39	762	0	2, 019
275	28	70	15	818	0	3, 613
52	5	26	10	262	0	688
2, 899	294	1, 165	273	15, 243	0	39, 540
870	135	447	114	5, 942	0	16, 318
91	5	98	19	740	0	1, 210
4, 465	506	1, 962	474	23, 845	0	64, 322
188	49	163	83	2, 431	0	8, 988
25	6	2	0	28	0	645
1, 347	200	419	120	9, 748	0	28, 135
64	15	60	26	746	0	2, 157
621	120	260	48	4, 025	0	17, 083
409	58	92	27	1, 726	0	8, 609
266	57	100	37	2, 157	0	7, 830
202	28	53	18	1, 138	0	5, 359
50	14	16	11	271	0	1, 197
102	17	78	23	486	0	1, 603
178	30	67	18	1, 252	0	5, 156
3, 452	594	1, 310	411	24, 008	0	86, 762

TABLE 4. *National total af physicians as arranged by*

Primary specialty	Source of professional income		
	Group medical practice	Fee for service only: individual practice	Fee for service only: group or partnership practice
I. Active—Continued			
D. Psychiatry and neurology:			
Child psychiatry	18	183	25
Neurology	174	470	29
Psychiatry	538	5, 447	198
Subtotal	730	6, 100	252
E. Other specialties:			
Aviation medicine	4	31	4
General preventive medicine	7	0	0
Occupational medicine	81	190	35
Pathology	701	1, 042	224
Physical medicine and rehabilitation	46	156	10
Public health	4	0	0
Radiology	2, 313	2, 200	684
Subtotal	3, 156	3, 619	957
F. Unspecified/other	67	403	19
Active subtotal	28, 880	120, 643	14, 009
II. Inactive	0	0	0
III. Overseas	43	1, 295	45
IV. Address unknown	0	0	0
V. Total	28, 923	121, 938	14, 054

primary specialty and source of professional income—Continued

Source of professional income—Continued						
Fee for service and part-time salary: individual practice	Fee for service and part-time salary: group or partnership practice	Full-time salary, but some fee for service: individual practice	Full-time salary, but some fee for service: group or partnership practice	Full-time salary only	Other	Total
152	14	84	19	452	0	947
140	21	157	52	1, 209	0	2, 252
2, 251	169	1, 447	224	8, 380	0	18, 654
2, 543	204	1, 688	295	10, 041	0	21, 853
4	2	12	4	598	0	659
0	0	78	15	841	0	941
76	15	193	25	1, 099	0	1, 714
207	60	932	309	5, 358	0	8, 833
103	20	121	25	634	0	1, 115
0	0	93	18	1, 504	0	1, 619
459	208	275	156	3, 736	0	10, 031
849	305	1, 704	552	13, 770	0	24, 912
88	7	262	67	12, 671	0	13, 584
15, 968	2, 147	7, 247	1, 848	89, 573	0	280, 315
0	0	0	0	0	13, 395	13, 395
332	32	208	26	5, 543	0	7, 524
0	0	0	0	0	1, 306	1, 306
16, 300	2, 179	7, 455	1, 874	95, 116	14, 701	302, 540

TABLE 5. *National total of physicians as arranged*

Primary specialty	Principal employer							
	Research institutions, excluding hospitals	Clinic or physician employer	Medical school or parent university	Other educational institution	Air Force	Army	Navy	U.S. P.H.S.
I. Active:								
A. General practice	8	2,357	145	226	630	733	727	336
B. Medical specialties:								
Allergy	1	61	19	2	6	5	3	0
Cardiovascular disease	15	66	241	11	18	27	14	22
Dermatology	5	126	192	4	38	64	60	32
Gastroenterology	1	47	60	3	6	13	1	3
Internal medicine	147	2,091	2,689	164	582	827	516	824
Pediatrics	52	775	1,252	120	273	246	168	173
Pulmonary diseases	4	24	41	6	1	14	5	19
Subtotal	225	3,190	4,494	310	924	1,196	767	1,073
C. Surgical specialties:								
Anesthesiology	6	359	447	12	66	73	116	33
Colon and rectal surgery	0	20	3	2	0	0	1	0
General surgery	18	1,165	828	78	354	504	373	276
Neurological surgery	8	118	185	2	25	35	33	11
Obstetrics and gynecology	15	828	543	26	275	308	220	34
Ophthalmology	19	290	267	12	78	111	83	75
Orthopedic surgery	3	501	251	26	114	183	157	33
Otolaryngology	2	242	168	7	70	83	71	18
Plastic surgery	0	48	52	2	11	19	21	1
Thoracic surgery	1	84	125	7	21	29	17	7
Urology	4	255	172	6	55	75	67	18
Subtotal	76	3,910	3,041	180	1,069	1,420	1,159	506

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by primary specialty and principal employer

Principal employer—Continued									
Non-federal public health departments	Veterans' Administration	Non-Federal hospitals	Other Industry	Pharmaceutical company	Self-employed	Other Federal Government agencies	Other Federal civil service	Other	Total
187	455	1,924	119	23	60,926	38	48	0	68,882
2	9	43	0	3	779	0	1	0	934
8	70	488	16	7	1,011	0	5	0	2,019
13	65	406	4	14	2,585	1	4	0	3,613
1	61	144	3	2	343	0	0	0	688
121	1,937	8,381	226	142	20,790	35	68	0	39,540
313	24	3,717	16	65	9,047	32	45	0	16,318
100	181	468	6	3	329	7	2	0	1,210
558	2,347	13,647	271	236	34,884	75	125	0	64,322
10	156	1,734	3	11	5,953	3	6	0	8,988
1	4	17	2	0	595	0	0	0	645
32	797	6,935	50	9	16,693	11	12	0	28,135
0	46	477	1	0	1,211	1	4	0	2,157
54	20	2,791	7	20	11,925	5	12	0	17,083
11	97	1,074	7	2	6,478	1	4	0	8,609
9	190	1,308	7	0	5,042	4	2	0	7,830
13	115	657	1	1	3,910	1	0	0	5,359
0	9	180	0	1	852	0	1	0	1,197
3	84	286	2	2	932	2	1	0	1,603
3	179	751	3	2	3,565	1	0	0	5,156
136	1,697	16,210	83	48	57,156	29	42	0	86,762

TABLE 5. *National total of physicians as arranged by*

Primary specialty	Principal employer—Continued							
	Research institutions, excluding hospitals	Clinic or physician employer	Medical school or parent university	Other educational institution	Air Force	Army	Navy	U.S. P.H.S.
I. Active:								
D. Psychiatry and neurology:								
Child psychiatry	1	83	94	11	6	17	6	11
Neurology	13	95	410	7	24	45	30	57
Psychiatry	55	547	1,165	98	123	230	167	230
Subtotal	69	725	1,669	116	153	292	203	298
E. Other specialities:								
Aviation medicine	9	2	9	2	287	43	161	3
General preventive medicine	11	8	136	72	15	38	15	84
Occupational medicine	11	45	33	12	16	12	19	4
Pathology	99	429	1,073	38	78	211	103	141
Physical medicine and rehabilitation	3	35	145	11	5	13	3	6
Public health	10	4	93	72	1	16	1	191
Radiology	12	720	614	16	119	162	120	84
Subtotal	155	1,243	2,103	223	521	495	422	513
F. Unspecified/other	233	65	1,320	210	353	415	449	469
Active subtotal	766	11,490	12,772	1,265	3,650	4,551	3,727	3,195
II. Inactive	0	0	0	0	0	0	0	0
III. Overseas	50	66	296	146	834	1,699	651	189
IV. Address unknown	0	0	0	0	0	0	0	0
V. Total	816	11,556	13,068	1,411	4,484	6,250	4,378	3,384

primary specialty and principal employer—Continued

Principal employer—Continued									Total
Non-federal public health departments	Veterans' Administration	Non-Federal hospitals	Other Industry	Pharmaceutical company	Self-employed	Other Federal Government agencies	Other Federal civil service	Other	
26	0	363	0	0	316	10	3	0	947
4	167	656	0	0	739	2	3	0	2,252
278	1,049	6,414	17	10	8,075	156	40	0	18,654
308	1,216	7,433	17	10	9,130	168	46	0	21,853
3	4	20	47	0	43	5	21	0	659
358	19	55	85	11	1	15	18	0	941
58	10	27	1,013	37	352	19	46	0	1,714
84	418	4,108	13	13	1,958	37	30	0	8,833
13	225	349	3	0	300	1	3	0	1,115
1,110	8	59	19	7	0	16	12	0	1,619
9	362	2,654	4	0	5,149	3	3	0	10,031
1,635	1,046	7,272	1,184	68	7,803	96	133	0	24,912
191	330	8,552	142	207	535	53	60	0	13,584
3,015	7,091	55,038	1,816	592	170,434	459	454	0	280,315
0	0	0	0	0	0	0	0	13,395	13,395
201	61	1,493	44	10	1,682	26	76	0	7,524
0	0	0	0	0	0	0	0	1,306	1,306
3,216	7,152	56,531	1,860	602	172,116	485	530	14,701	302,540

SECTION C—WOMEN DOCTORS

Additional data: Under the listed categories of "Male", "Female", and "Subtotal", subcategories for "Federal" and "Non-Federal" physicians were provided.

As elsewhere, the "Overseas" category was subdivided into "U.S. Possessions" and "Foreign countries" (also with "Federal", "Non-Federal" listings).

Tables not included: A similar table was obtained on physicians by nature of professional medical activities (i.e., with columns like table 2).

TABLE 6. *National total of physicians arranged by sex and detail of professional activities*

Sex	Detail of professional activities										
	Full-time specialty practice	General practice with specialty interest	Intern	Resident or fellow	Other Full-time staff in hospital service	Full-time medical school faculty	Adminis-trative medicine	Re-search	Re-tired	Not in practice	Total
I. Active:											
Male.............	157, 117	19, 790	9, 169	30, 968	28, 590	9, 414	3, 671	3, 900	0	0	262, 619
Female...........	8, 128	812	984	3, 437	2, 656	971	257	451	0	0	17, 696
Subtotal........	165, 245	20, 602	10, 153	34, 405	31, 246	10, 385	3, 928	4, 351	0	0	280, 315
II. Inactive...........	0	0	0	0	0	0	0	0	10, 141	3, 254	13, 395
III. Overseas..........	1, 763	200	116	342	4, 222	305	338	238	0	0	7, 524
IV. Address unknown...	0	0	0	0	0	0	0	0	0	1, 306	1, 306
V. Total..............	167, 008	20, 802	10, 269	34, 747	35, 468	10, 690	4, 266	4, 589	10, 141	4, 560	302, 540

SECTION D—SPECIALTY BOARDS

Explanation: Table 7—"Without a board" refers to those physicians who have not passed the examinations in their specialty which would qualify them as board-certified; Table 8—N.B. data does not add to 302,540 because some physicians are board-certified in 2 or more specialties.

Additional data: Table 7—The "Overseas" category is subdivided into "U.S. Possessions" and "Foreign countries"; this information is available; Table 8—"Federal", "Non-Federal" listings are available for each of the "Overseas" categories.

Tables not included: A listing of physicians with specialty boards was cross-tabulated against their stated primary specialty. Thus, it is possible to see which physicians so qualified are not now practicing within their area of proficiency.

TABLE 7. *National total of physicians arranged by sex and specialty boards*

Specialty boards	Sex		Total
	Male	Female	
I. Active:			
Those without a board:			
Federal	17,240	562	17,802
Non-Federal	160,657	13,453	174,110
Total	177,897	14,015	191,912
Those with a board:			
Federal	4,662	204	4,866
Non-Federal	80,060	3,477	83,537
Total	84,722	3,681	88,403
Subtotals:			
Federal	21,902	766	22,668
Non-Federal	240,717	16,930	257,647
Total	262,619	17,696	280,315
II. Inactive [1]	10,930	2,465	13,395
III. Overseas:			
Federal	3,484	26	3,510
Non-Federal	3,552	462	4,014
Total	7,036	488	7,524
IV. Address unknown [1]	1,071	235	1,306
V. Totals:			
Federal	25,386	792	26,178
Non-Federal	256,270	20,092	276,362
	281,656	20,884	302,540

[1] These categories are counted as non-Federal.

TABLE 8. *National total of physicians arranged by specialty board and type of employer*

Specialty board	U.S. active			Inactive	Overseas		Address unknown	Total
	Federal	Non-Federal	Total		U.S. possessions	Foreign		
Anesthesiology	109	3, 501	3, 610	48	15	28	4	3, 705
Colon and rectal surgery	5	284	289	13	2	2	0	306
Dermatology	106	1, 980	2, 086	65	5	31	3	2, 190
Internal medicine	1, 180	13, 962	15, 142	377	53	89	8	15, 669
Neurological surgery	38	1, 051	1, 089	14	5	13	2	1, 123
Obstetrics and gynecology	156	7, 477	7, 633	184	33	61	5	7, 916
Ophthalmology	101	4, 717	4, 818	151	27	22	4	5, 022
Orthopedic surgery	148	3, 963	4, 111	65	10	39	2	4, 227
Otolaryngology	127	3, 541	3, 668	244	15	17	2	3, 946
Pathology	462	4, 620	5, 082	130	29	61	12	5, 314
Pediatrics	241	8, 874	9, 115	235	63	92	20	9, 525
Physical medicine and rehabilitation	80	348	428	11	4	7	1	451
Plastic surgery	16	616	632	15	2	3	0	652
Preventive medicine	347	1, 197	1, 544	200	6	81	9	1, 840
Psychiatry and neurology	530	6, 993	7, 523	248	29	30	18	7, 848
Radiology	376	6, 410	6, 786	224	28	56	5	7, 099
Surgery	806	12, 424	13, 230	245	59	232	20	13, 786
Thoracic surgery	161	1, 542	1, 703	17	5	36	1	1, 762
Urology	90	2, 620	2, 710	120	13	19	3	2, 865
Subtotal	5, 079	86, 120	91, 199	2, 606	403	919	119	95, 246
Those without a specialty board	17, 802	174, 110	191, 912	10, 871	1, 828	4, 421	1, 189	210, 221
Total	22, 881	260, 230	283, 111	13, 477	2, 231	5, 340	1, 308	305, 467

SECTION E—ADDITIONAL EDUCATION

Explanation: This is a condensed version of a much larger table, which gives the same information for all degrees listed. For purpose of this summary only those degrees were listed whose holders (U.S. active) were 100 or more.

N.B Each earned degree –other than M.D.—is reported; thus, the data does not add to 302,540.

Additional data: "Federal", "Non-Federal" breakout for each subcategory of "Overseas" is available.

TABLE 9. *Physicians as arranged by other earned degrees*

Degree	U.S. active			Inactive	Overseas		Address unknown	Total
	Federal	Non-Federal	Total		U.S. possessions	Foreign		
octor of dental science	3	119	122	10	1	0	1	134
octor of dental surgery	14	182	196	13	2	2	0	213
octor of medical science	10	193	203	3	1	6	0	213
octor of osteopathy	6	307	313	12	0	0	1	326
octor of philosophy	179	1, 911	2, 090	74	6	29	2	2, 201
octor of public health	32	175	207	39	1	11	1	259
octor of science	19	313	332	34	3	5	2	376
aster of liberal arts	58	735	793	38	0	9	0	840
aster of medical science	34	731	765	31	9	7	1	813
aster of physiology	28	201	229	3	0	1	1	234
Master of public health	451	1, 736	2, 187	111	42	135	10	2, 485
Master of science	469	6, 097	6, 566	177	20	86	7	6, 856
Master of science in pathology	5	105	110	1	0	0	0	111
Master of science in public health	14	157	171	14	4	5	0	194
Master of surgery	38	1, 079	1, 117	32	7	17	1	1, 174
Other degrees	106	1, 115	1, 221	71	5	39	5	1, 341
Physicians reporting no other degrees	21, 369	244, 028	265, 397	12, 799	2, 127	4, 985	1, 276	286, 584

SECTION F—GROUP PRACTICE

Explanation: The primary focus of the analysis was on those physicians in group practice. Accordingly, they are analyzed by: primary specialty (table 10), specialty board (table 11), State of residence (table 12), and location of medical school (table 13) in which they received their M.D. degree.

Table 11 has a figure greater than 302,540 because some physicians are certified in more than one specialty.

Additional data: Wherever given, additional breakouts for "U.S. possessions" and "Foreign countries" (under "Overseas") were made.

Tables 27–30: A "Federal", "Non-Federal" subcategorization was obtained for each specialty, specialty board, or State.

Table 30: The original listing is by each school within each State. This was condensed for inclusion within this report. Many of the schools are no longer in existence. While they were given a number code for the computer printout, identification of each is possible.

Tables not included: A study was made by cross-referencing the "Male", "Female" classification against those participating in "Group", "Nongroup" practice—with additional breakouts of those in "Federal", "Non-Federal" service under "Male" and "Female" categories.

TABLE 10. *Physicians in group (nongroup) practice arranged by primary specialty*

Primary specialty	Active				In-active	Overseas	Address unknown	Total
	Group practice	Nongroup practice	Intern-resident	Total				
I. Active:								
A. General practice	6, 015	62, 199	668	68, 882	0	1, 808	0	70, 690
B. Medical specialties:								
Allergy	88	814	32	934	0	11	0	945
Cardiovascular disease	157	1, 532	330	2, 019	0	49	0	2, 068
Dermatology	264	2, 876	473	3, 613	0	82	0	3, 695
Gastroenterology	76	485	127	688	0	19	0	707
Internal medicine	4, 768	27, 294	7, 478	39, 540	0	1, 013	0	40, 553
Pediatrics	2, 056	11, 311	2, 951	16, 318	0	465	0	16, 783
Pulmonary diseases	28	1, 117	65	1, 210	0	37	0	1, 247
Subtotal	7, 437	45, 429	11, 456	64, 322	0	1, 676	0	65, 998
C. Surgical specialties:								
Anesthesiology	2, 114	5, 687	1, 187	8, 988	0	153	0	9, 141
Colon and rectal surgery	48	583	14	645	0	4	0	649
General surgery	2, 952	18, 488	6, 695	28, 135	0	931	0	29, 066
Neurological surgery	263	1, 412	482	2, 157	0	56	0	2, 213
Obstetrics and gynecology	2, 375	12, 110	2, 598	17, 083	0	466	0	17, 549
Ophthalmology	731	6, 706	1, 172	8, 609	0	171	0	8, 780
Orthopedic surgery	1, 349	5, 048	1, 433	7, 830	0	190	0	8, 020
Otolaryngology	580	4, 046	733	5, 359	0	89	0	5, 448

Plastic surgery	70	931	196	1, 197	0	20	0	1, 217
Thoracic surgery	179	1, 195	229	1, 603	0	42	0	1, 645
Urology	665	3, 673	818	5, 156	0	94	0	5, 250
Subtotal	11, 326	59, 879	15, 557	86, 762	0	2, 216	0	88, 978
D. Psychiatry and neurology:								
Child psychiatry	18	681	248	947	0	16	0	963
Neurology	174	1, 510	568	2, 252	0	67	0	2, 319
Psychiatry	535	14, 561	3, 558	18, 654	0	292	0	18, 946
Subtotal	727	16, 752	4, 374	21, 853	0	375	0	22, 228
E. Other specialties:								
Aviation medicine	4	576	79	659	0	153	0	812
General preventive medicine	6	897	38	941	0	95	0	1, 036
Occupational medicine	81	1, 617	16	1, 714	0	19	0	1, 733
Pathology	698	5, 975	2, 160	8, 833	0	186	0	9, 019
Physical medicine and rehabilitation	46	855	214	1, 115	0	30	0	1, 145
Public health	4	1, 582	33	1, 619	0	96	0	1, 715
Radiology	2, 315	5, 957	1, 759	10, 031	0	202	0	10, 233
Subtotal	3, 154	17, 459	4, 299	24, 912	0	781	0	25, 693
F. Unspecified/other	67	5, 313	8, 204	13, 584	13, 395	668	1, 306	28, 953
II. Total	28, 726	207, 031	44, 558	280, 315	13, 395	7, 524	1, 306	302, 540

TABLE 11. *Physicians in group (nongroup) practice arranged by specialty boards*

Specialty boards	Active				Inactive	Overseas	Address unknown	Total
	Group practice	Nongroup practice	Intern-resident	Total				
Anesthesiology	1, 216	2, 379	15	3, 610	48	43	4	3, 705
Colon and rectal surgery	34	255	0	289	13	4	0	306
Dermatology	213	1, 868	5	2, 086	65	36	3	2, 190
Internal medicine	2, 915	12, 155	72	15, 142	377	142	8	15, 669
Neurological surgery	226	860	3	1, 089	14	18	2	1, 123
Obstetrics and gynecology	1, 541	6, 078	14	7, 633	184	94	5	7, 916
Ophthalmology	570	4, 239	9	4, 818	151	49	4	5, 022
Orthopedic surgery	1, 038	3, 069	4	4, 111	65	49	2	4, 227
Otolaryngology	512	3, 146	10	3, 668	244	32	2	3, 946
Pathology	627	4, 427	28	5, 082	130	9	12	5, 314
Pediatrics	1, 575	7, 312	228	9, 115	235	155	20	9, 525
Physical medicine and rehabilitation	23	403	2	428	11	11	1	451
Plastic surgery	58	572	2	632	15	5	0	652
Preventive medicine	28	1, 502	14	1, 544	200	87	9	1, 840
Psychiatry and neurology	440	7, 070	13	7, 523	248	59	18	7, 848
Radiology	2, 113	4, 653	20	6, 786	224	84	5	7, 099
Surgery	2, 165	10, 895	170	13, 230	245	291	20	13, 786
Thoracic surgery	280	1, 413	10	1, 703	17	41	1	1, 762
Urology	500	2, 207	3	2, 710	120	32	3	2, 865
Subtotal	16, 074	74, 503	622	91, 199	2, 606	1, 322	119	95, 246
Those having no board	13, 046	134, 919	43, 947	191, 912	10, 871	6, 249	1, 189	210, 221
Total	29, 120	209, 422	44, 569	283, 111	13, 477	7, 571	1, 308	305, 467

TABLE 12. *Physicians in group (nongroup) practice arranged by State of residence*

State of residence	Active			
	Group practice	Nongroup practice	Intern-resident	Total
I. Active:				
Alabama	415	2, 281	270	2, 966
Alaska	45	206	0	251
Arizona	281	1, 610	179	2, 070
Arkansas	252	1, 337	169	1, 758
California	4, 373	25, 311	4, 149	33, 833
Colorado	444	2, 424	653	3, 521
Connecticut	315	4, 079	833	5, 227
Delaware	35	580	70	685
District of Columbia	187	2, 734	927	3, 848
Florida	787	5, 993	969	7, 749
Georgia	422	3, 653	709	4, 784
Hawaii	218	640	93	951
Idaho	80	550	0	630
Illinois	1, 347	10, 996	2, 549	14, 892
Indiana	618	3, 854	407	4, 879
Iowa	541	1, 973	380	2, 894
Kansas	495	1, 757	409	2, 661
Kentucky	348	2, 521	368	3, 237
Louisiana	633	2, 881	760	4, 274
Maine	47	943	37	1, 027
Maryland	185	5, 858	1, 669	7, 712
Massachusetts	570	8, 079	2, 328	10, 977
Michigan	890	7, 298	2, 194	10, 382
Minnesota	1, 542	2, 553	1, 265	5, 360
Mississippi	268	1, 417	152	1, 837
Missouri	680	3, 838	1, 102	5, 620
Montana	165	556	1	722
Nebraska	295	1, 255	172	1, 722
Nevada	83	363	1	447
New Hampshire	129	670	66	865
New Jersey	388	7, 856	1, 042	9, 286
New Mexico	135	846	83	1, 064
New York	1, 962	29, 361	8, 205	39, 528
North Carolina	604	3, 876	792	5, 272
North Dakota	281	344	13	638
Ohio	1, 222	9, 748	2, 546	13, 516
Oklahoma	381	1, 925	262	2, 568
Oregon	539	1, 816	320	2, 675
Pennsylvania	927	13, 101	2, 952	16, 980
Rhode Island	63	1, 180	169	1, 412
South Carolina	181	1, 928	174	2, 283
South Dakota	169	411	16	596
Tennessee	503	3, 267	749	4, 519

TABLE 12. *Physicians in group (nongroup) practice arranged by State of residence*—Continued

State of residence	Active			
	Group practice	Nongroup practice	Intern-resident	Total
I. Active—Continued				
Texas	1,778	9,261	1,825	12,864
Utah	227	921	204	1,352
Vermont	37	508	115	660
Virginia	539	4,335	817	5,691
Washington	729	3,290	598	4,617
West Virginia	216	1,407	149	1,772
Wisconsin	1,110	3,160	646	4,916
Wyoming	45	280	0	325
Subtotal	28,726	207,031	44,558	280,315
II. Inactive	1	13,394	0	13,395
III. Overseas	43	7,023	458	7,524
IV. Address unknown	1	1,305	0	1,306
V. Total	28,771	228,753	45,016	302,540

TABLE 13. *Physicians in group (nongroup) practice arranged by location of medical schools*

Location of medical schools	Active				Inactive	Overseas	Address unknown	Total
	Group practice	Nongroup practice	Intern-resident	Total				
I. United States:								
Alabama	141	836	274	1, 251	30	27	4	1, 312
Arkansas	339	1, 714	301	2, 354	70	36	8	2, 468
California	1, 566	9, 666	1, 703	12, 935	695	397	62	14, 089
Colorado	333	1, 615	282	2, 230	121	82	6	2, 439
Connecticut	214	1, 717	314	2, 245	92	56	16	2, 409
District of Columbia	533	6, 872	1, 176	8, 581	240	298	63	9, 182
Florida	33	443	404	880	6	47	4	937
Georgia	540	3, 634	619	4, 793	201	99	15	5, 108
Illinois	2, 763	16, 566	2, 194	21, 523	1, 514	422	82	23, 541
Indiana	541	3, 509	540	4, 590	210	75	25	4, 900
Iowa	605	2, 466	391	3, 462	198	67	14	3, 741
Kansas	566	2, 088	390	3, 044	110	90	7	3, 251
Kentucky	408	2, 854	408	3, 670	212	49	14	3, 945
Louisiana	1, 073	5, 372	937	7, 382	242	211	21	7, 856

TABLE 13. *Physicians in group (nongroup) practice arranged by location of medical schools*—Continued

Location of medical schools	Active				Inactive	Overseas	Address unknown	Total
	Group practice	Nongroup practice	Intern-resident	Total				
I. United States—Continued								
Maine	1	43	0	44	31	0	0	75
Maryland	564	5, 650	753	6, 967	711	195	36	7, 909
Massachusetts	1, 166	10, 855	1, 404	13, 425	722	252	56	14, 455
Michigan	884	6, 125	1, 055	8, 064	541	178	38	8, 821
Minnesota	1, 072	3, 184	489	4, 745	277	98	12	5, 132
Mississippi	41	257	246	544	2	23	1	570
Missouri	1, 112	6, 721	1, 000	8, 833	596	214	38	9, 681
Nebraska	893	3, 933	546	5, 372	247	103	13	5, 735
New Hampshire	0	10	0	10	14	0	0	24
New Jersey	5	178	279	462	0	26	0	488
New York	2, 368	23, 581	4, 178	30, 127	1, 508	529	150	32, 314
North Carolina	533	2, 723	829	4, 085	51	102	11	4, 249
Ohio	1, 033	7, 808	1, 203	10, 044	553	172	32	10, 801
Oklahoma	362	1, 794	328	2, 484	71	61	7	2, 623

Oregon	381	1,653	282	2,316	121	79	9	2,525
Pennsylvania	2,003	19,065	2,744	23,812	1,318	548	90	25,768
Puerto Rico	10	101	67	178	5	364	20	567
South Carolina	148	1,600	273	2,021	61	43	4	2,129
Tennessee	964	6,980	1,108	9,052	401	145	40	9,638
Texas	1,261	5,830	1,180	8,271	258	202	26	8,757
Utah	146	629	184	959	7	35	2	1,003
Vermont	116	1,199	184	1,499	103	40	3	1,645
Virginia	702	4,331	608	5,641	288	131	21	6,081
Washington	141	648	312	1,101	8	56	2	1,167
West Virginia	3	76	117	196	1	16	0	213
Wisconsin	904	3,789	681	5,374	163	137	19	5,693
U.S. subtotal	26,468	178,115	29,983	234,566	11,999	5,705	971	253,241
II. Canada	545	4,164	1,013	5,722	323	369	42	6,456
III. Foreign medical graduates	1,713	24,752	13,562	40,027	1,073	1,450	293	42,843
IV. Total	28,726	207,031	44,558	280,315	13,395	7,524	1,306	302,540

SECTION G—AGE DISTRIBUTION

Explanation: Table 14—Refers to age of the physicians as of January 2, 1967; tables 15–16—Refers to the year of graduation from medical school.

Additional information: Tables 14–16—Separate age categories for 20–24 and 25–29 were made, but the former contained few doctors except as interns or residents; a "Federal", "Nonfederal" breakout was obtained on each of the specialties, as well as on the expanded "Overseas" categories; table 15—a "Federal", "Nonfederal" breakout was also obtained by each State of residence and on the expanded "Oversea[illegible] category.

Tables not included: A. Tables were also obtained on the age distribution of physicians cross-referenced against: nature of professional medical activity; source of professional income; and, principal employer. These correspond to the AMA's codes A, C, and D (see tables 2, 4, 5) and are similar in format to table 14.

B. A long table was obtained on the year of graduation from individual medical schools.

C. Three additional tables similar to table 16 were formed by cross-referencing the year of graduation against: nature of professional medical activity; source of professional income; and, principal employer.

TABLE 14. *Age distribution of physicians according to detail of professional activities*

Professional Activities	Age										Total
	20–29	30–34	35–39	40–44	45–49	50–54	55–59	60–64	65–69	70 and over	
I. Active:											
A. Full-time specialty practice....	1,364	14,108	25,725	28,848	24,346	20,907	17,867	12,898	8,479	10,703	165,245
B. General practice with specialty interest......................	44	568	1,333	2,267	2,696	3,133	3,728	2,866	1,874	2,093	20,602
C. Intern......................	8,583	1,134	272	92	38	17	10	5	2	0	10,153
D. Resident or fellow............	15,786	13,185	3,274	1,276	497	239	112	24	8	4	34,405
E. Other full-time staff in hospital service................	5,383	7,960	4,587	3,528	2,501	2,163	2,008	1,604	959	553	31,246
F. Full-time medical school faculty......................	71	1,388	2,702	2,274	1,512	922	666	436	269	145	10,385
G. Administrative medicine......	160	171	224	456	506	575	742	589	304	201	3,928
H. Research..................	361	969	963	728	465	327	219	123	90	106	4,351
Subtotal....................	31,752	39,483	39,080	39,469	32,561	28,283	25,352	18,545	11,985	13,805	280,315
II. Inactive......................	173	261	308	399	301	383	519	963	1,783	8,305	13,395
III. Overseas.....................	1,861	1,951	1,162	875	564	359	262	180	151	159	7,524
IV. Address unknown...........	106	215	196	165	121	92	79	76	68	188	1,306
V. Total.........................	33,892	41,910	40,746	40,908	33,547	29,117	26,212	19,764	13,987	22,457	302,540

TABLE 15. *Physicians arranged by year of graduation and present State of residence*

State of residence	Year of graduation							Total
	Prior to 1915	1915–24	1925–34	1935–44	1945–54	1955–64	1965–66	
I. Active:								
Alabama	90	115	325	626	781	895	134	2,966
Alaska	0	2	16	27	74	117	15	251
Arizona	13	44	235	419	537	699	123	2,070
Arkansas	57	72	185	371	461	519	93	1,758
California	256	984	3,115	6,955	8,888	11,769	1,866	33,833
Colorado	38	98	297	657	881	1,302	248	3,521
Connecticut	66	204	668	1,059	1,287	1,642	301	5,227
Delaware	9	23	96	165	192	180	20	685
District of Columbia	24	125	490	734	720	1,472	283	3,848
Florida	71	266	728	1,516	2,238	2,500	430	7,749
Georgia	107	153	439	878	1,246	1,643	318	4,784
Hawaii	4	25	112	218	259	289	44	951
Idaho	12	16	79	184	188	144	7	630
Illinois	275	757	1,975	3,376	3,647	4,056	806	14,892
Indiana	76	204	707	1,264	1,209	1,208	211	4,879

Iowa	82	153	413	630	718	767	131	2, 894
Kansas	82	77	273	555	659	887	128	2, 661
Kentucky	91	90	399	627	819	1, 050	161	3, 237
Louisiana	72	128	384	851	1, 066	1, 442	331	4, 274
Maine	34	60	145	296	257	203	32	1, 027
Maryland	68	240	593	1, 218	1, 722	3, 314	557	7, 712
Massachusetts	152	616	1, 494	2, 347	2, 137	3, 578	653	10, 977
Michigan	134	467	1, 132	1, 999	2, 477	3, 524	649	10, 382
Minnesota	88	176	563	952	1, 320	1, 917	344	5, 360
Mississippi	70	69	197	349	501	572	79	1, 837
Missouri	123	288	688	1, 106	1, 302	1, 700	413	5, 620
Montana	9	30	76	174	231	185	17	722
Nebraska	50	105	223	345	409	489	101	1, 722
Nevada	2	20	57	112	120	125	11	447
New Hampshire	15	40	134	239	198	210	29	865
New Jersey	145	459	1, 441	2, 208	2, 189	2, 563	281	9, 286
New Mexico	8	15	120	218	292	360	51	1, 064
New York	637	2, 718	6, 126	8, 303	7, 302	12, 080	2, 362	39, 528
North Carolina	73	218	612	1, 031	1, 317	1, 712	309	5, 272
North Dakota	13	18	71	131	171	219	15	638
Ohio	184	624	1, 771	2, 867	3, 273	4, 042	755	13, 516
Oklahoma	73	107	307	531	634	776	140	2, 568
Oregon	30	73	304	622	748	786	112	2, 675
Pennsylvania	349	811	2, 438	3, 738	3, 754	4, 840	1, 050	16, 980
Rhode Island	24	69	220	309	342	387	61	1, 412
South Carolina	56	79	234	475	572	747	120	2, 283

TABLE 15. *Physicians arranged by year of graduation and present State of residence*—Continued

State of residence	Year of graduation							Total
	Prior to 1915	1915–24	1925–34	1935–44	1945–54	1955–64	1965–66	
I. Active—Continued								
South Dakota	7	20	86	135	163	156	29	596
Tennessee	117	160	454	900	1, 196	1, 375	317	4, 519
Texas	166	434	1, 334	2, 652	3, 374	4, 179	725	12, 864
Utah	8	46	116	283	386	416	97	1, 352
Vermont	12	21	99	169	144	172	43	660
Virginia	91	188	607	1, 081	1, 435	1, 915	374	5, 691
Washington	28	90	412	1, 079	1, 326	1, 423	259	4, 617
West Virginia	58	96	286	454	464	361	53	1, 772
Wisconsin	74	204	653	998	1, 309	1, 439	239	4, 916
Wyoming	5	12	40	83	106	75	4	325
Subtotal	4, 328	12, 109	33, 969	58, 516	67, 041	88, 421	15, 931	280, 315
II. Inactive	4, 398	4, 047	2, 592	942	665	655	96	13, 395
III. Overseas	45	149	336	696	1, 321	4, 338	639	7, 524
IV. Address unknown	79	109	156	159	293	480	30	1, 306
V. Total	8, 850	16, 414	37, 053	60, 313	69, 320	93, 894	16, 696	302, 540

TABLE 16. *Physicians arranged by year of graduation and detail of professional activities*

Professional activities	Year of graduation							Total
	Prior to 1915	1915–24	1925–34	1935–44	1945–54	1955–64	1965–66	
I. Active:								
A. Full-time specialty practice	3, 515	9, 156	24, 007	43, 151	48, 824	36, 134	458	165, 245
B. General practice with specialty interest	602	1, 817	5, 134	6, 653	3, 978	2, 413	5	20, 602
C. Intern	0	1	7	22	115	1, 357	8, 651	10, 153
D. Resident or fellow	1	6	42	404	1, 734	27, 254	4, 964	34, 405
E. Other full-time staff in hospital service	113	608	2, 703	4, 389	6, 198	15, 489	1, 746	31, 246
F. Full-time medical school faculty	24	190	799	2, 009	4, 078	3, 265	20	10, 385
G. Administrative medicine	48	224	1, 042	1, 274	817	498	25	3, 928
H. Research	25	107	235	614	1, 297	2, 011	62	4, 351
Subtotal	4, 328	12, 109	33, 969	58, 516	67, 041	88, 421	15, 931	280, 315
II. Inactive	4, 398	4, 047	2, 592	942	665	655	96	13, 395
III. Overseas	45	149	336	696	1, 321	4, 338	639	7, 524
IV. Address unknown	79	109	156	159	293	480	30	1, 306
V. Total	8, 850	16, 414	37, 053	60, 313	69, 320	93, 894	16, 696	302, 540

SECTION H—FEDERAL SERVICE

TABLE 17. *National total of physicians arranged by State of residence and type of Federal service*

State of residence	Principal employer					Total
	Federal				Non-Federal	
	DOD	PHS	VA	Other		
I. Active:						
Alabama	173	9	107	2	2, 675	2, 966
Alaska	15	66	3	2	165	251
Arizona	110	101	88	4	1, 767	2, 070
Arkansas	63	3	96	3	1, 593	1, 758
California	1, 768	203	868	43	30, 951	33, 833
Canal Zone	45	4	0	14	92	155
Colorado	318	16	68	5	3, 114	3, 521
Connecticut	128	23	85	0	4, 991	5, 227
Delaware	26	0	16	1	642	685
District of Columbia	553	174	191	94	2, 836	3, 848
Florida	576	24	181	6	6, 962	7, 749
Georgia	321	129	125	7	4, 202	4, 784
Hawaii	36	9	5	2	899	951
Idaho	19	2	15	3	591	630
Illinois	386	31	509	9	13, 957	14, 892
Indiana	90	7	63	4	4, 715	4, 879
Iowa	48	3	77	1	2, 765	2, 894
Kansas	149	21	128	4	2, 359	2, 661
Kentucky	178	35	72	1	2, 951	3, 237
Louisiana	152	123	135	2	3, 862	4, 274
Maine	61	6	35	1	924	1, 027
Maryland	707	1, 060	125	97	5, 723	7, 712
Massachusetts	292	103	273	10	10, 299	10, 977
Michigan	179	34	170	2	9, 997	10, 382
Minnesota	80	18	200	2	5, 060	5, 360
Mississippi	103	12	71	1	1, 650	1, 837
Missouri	130	35	98	3	5, 354	5, 620
Montana	34	28	17	0	643	722
Nebraska	80	8	64	2	1, 568	1, 722
Nevada	26	6	14	1	400	447
New Hampshire	35	3	18	2	807	865
New Jersey	251	18	176	10	8, 831	9, 286
New Mexico	99	78	52	1	834	1, 064
New York	530	268	835	12	37, 883	39, 528
North Carolina	290	19	133	1	4, 829	5, 272

TABLE 17. *National total of physicians arranged by State of residence and type of Federal service*—Continued

State of residence	Principal employer					Total
	Federal				Non-Federal	
	DOD	PHS	VA	Other		
I. Active—Continued						
North Dakota........	58	14	16	0	550	638
Ohio................	242	42	228	8	12,996	13,516
Oklahoma...........	146	48	60	5	2,309	2,568
Oregon..............	33	11	83	1	2,547	2,675
Pennsylvania.........	430	29	311	14	16,196	16,980
Puerto Rico..........	42	22	51	4	1,855	1,974
Rhode Island.........	105	1	32	0	1,274	1,412
South Carolina.......	284	6	55	2	1,936	2,283
South Dakota.........	27	32	39	0	498	596
Tennessee............	129	13	187	3	4,187	4,519
Texas	1,432	67	367	23	10,975	12,864
Utah	45	10	36	4	1,257	1,352
Vermont.............	5	1	14	0	640	660
Virginia.............	597	127	155	51	4,761	5,691
Virgin Islands........	0	0	0	0	56	56
Washington..........	297	105	115	4	4,096	4,617
West Virginia........	23	9	82	0	1,658	1,772
Wisconsin............	56	2	177	1	4,680	4,916
Wyoming............	13	3	21	0	288	325
Pacific Islands........	1	4	0	5	29	39
Subtotal...........	12,016	3,225	7,142	477	259,679	282,539
II. Inactive.............	0	0	0	0	14,701	14,701
III. Overseas............	3,096	159	10	53	1,982	5,300
IV. Total...............	15,112	3,384	7,152	530	276,362	302,540

SECTION I—FOREIGN MEDICAL GRADUATES (FMG's)

Explanation:

An extensive analysis was done on FMG's because of the paucity of data on these individuals. These tables are quite long and involved, often listing individual countries throughout the world.

For purposes of this report these countries were grouped into regions. (Countries within each region are listed in the preface.) On the computer printout there is some mistake in coding for certain doctors. For these individuals (38) it is not possible to determine the specific country of education, and they are grouped as "Other".

Table 20—the initial breakout in the left-hand margin is by visa status and then by country of education for each classification of citizen. As will be noted, some entries contained no citizenship. The "Derivative" citizen is an American, one or both of whose parents has been naturalized.

Additional data:

Table 18—This table contains in its expanded form, under "Active Physicians", an alphabetical listing of the countries throughout the world, and a sublisting within each country of "The American-born (or derivative) foreign medical graduate", "The foreign-born FMG", "The naturalized FMG", and "The other FMG" (no citizenship listed). Similar breakouts were made for "U.S. possessions", and "Foreign countries" under the general category of "Overseas".

Table 19—The alphabetical listing of all countries contained two subcategories. Those physicians now in "Federal" or "Non-Federal" practice—with the same division for "U.S. possessions" and "Foreign countries".

Table 20—Under each visa status the countries were listed individually and in alphabetical order.

Tables not included:

Nine additional tables were obtained on FMG's:

1—Foreign medical graduates as arranged by country of education and the year in which the national board was taken. "Federal" and "Non-Federal" subcategories were obtained on each country.

2—Same type of listing (see 1 above) was obtained by country of education on "Male" and "Female" graduates.

3, 4, 5—These tables are similar to table 18 but are variously cross-referenced against the nature of professional medical activity, the source of professional income, and principal employer (see also explanation in Additional data).

6—Foreign medical graduates as arranged by primary specialty and location of education (whether a foreign medical graduate or an American medical graduate; the FMG's are subdivided into visa status).

7—Foreign medical graduates as arranged by specialty boards and location of education (see 6 above; the specialty boards are subdivided into "Federal" and "Non-Federal" categories as were the "Primary Specialties" listed in 6 above).

8—The national total of physicians as arranged by State of residence and visa status. Under the listing for each State a breakout is given for AMG, CMG, and FMG.

9—National total of physicians as arranged by citizenship and training status. This report is somewhat similar to table 20, but, instead of listing the individual countries within each category of the visa, it gives the doctors as AMG, CMG, or FMG. The foreign citizens, however, are broken out by "State of residence" as well. It is possible, for instance, to see how many physicians residing in Kentucky are American medical graduates, Canadian medical graduates, or foreign medical graduates and to see what their training status is.

TABLE 18. *Summary of foreign medical graduates arranged by country of education and detail of professional activities*

	Full-time specialty practice	General practice with specialty interest	Intern	Resident or fellow	Other Full-time Staff in hospital service	Full-time medical school faculty	Administrative medicine	Research	Retired	Not in practice	Total
I. Active:											
Country of education:											
North America....	151, 011	18, 299	7, 547	23, 382	24, 076	8, 933	3, 656	3, 206	0	0	240, 110
Latin America.....	1, 847	282	414	1, 993	1, 535	193	37	164	0	0	6, 465
Europe...........	10, 148	1, 778	434	2, 085	3, 307	857	193	597	0	0	19, 399
Africa............	165	7	26	183	104	72	6	14	0	0	577
Near East........	990	101	461	2, 482	908	136	19	114	0	0	5, 211
Eastern Asia......	1, 048	135	1, 271	4, 280	1, 315	194	17	255	0	0	8, 515
Other............	36	0	0	0	1	0	0	1	0	0	38
Total...........	165, 245	20, 602	10, 153	34, 405	31, 246	10, 385	3, 928	4, 351	0	0	280, 315
II. Inactive.............	0	0	0	0	0	0	0	0	10, 141	3, 254	13, 395
III. Overseas (location only).............	1, 763	200	116	342	4, 222	305	338	238	0	0	7, 524
IV. Address unknown.....	0	0	0	0	0	0	0	0	0	1, 306	1, 306
V. Total................	167, 008	20, 802	10, 269	34, 747	35, 468	10, 690	4, 266	4, 589	10, 141	4, 560	302, 540

TABLE 19. *Summary of foreign medical graduates arranged by country of education and year in which first licensed to practice*

	Prior to 1915	1915–24	1925–34	1935–44	1945–54	1955–64	1965–66	None	Total
I. Active									
Country of education:									
North America	3,080	8,516	24,143	35,682	58,086	66,270	15,520	28,813	240,110
Latin America	0	6	31	14	244	1,846	744	3,580	6,465
Europe	8	146	591	3,735	2,774	6,831	1,265	4,049	19,399
Africa	0	0	0	0	11	183	102	281	577
Near East	3	7	14	33	128	927	301	3,810	5,223
Eastern Asia	0	7	4	13	118	1,037	382	6,942	8,503
Other	23	6	4	2	1	2	0	0	38
Total	3,114	8,688	24,787	39,479	61,362	77,096	18,314	47,475	280,315
II. Inactive	2,382	2,397	1,817	856	768	526	118	4,531	13,395
III. Overseas (location only)	24	73	83	174	364	865	93	5,848	7,524
IV. Address unknown	0	0	0	0	2	6	2	1,296	1,306
V. Total	5,520	11,158	26,687	40,509	62,496	78,493	18,527	59,150	302,540

TABLE 20. *National total of physicians, arranged first by citizenship and then by country of education and training status*

Citizenship status	Intern	Resident	Fellow	Nontrainee	Total
I. ACTIVE:					
A. No citizenship given, country of education:					
North America	595	443	59	7,409	8,506
Latin America	19	155	21	504	699
Europe	21	154	33	1,466	1,674
Africa	3	21	4	48	76
Near East	19	186	26	342	573
Eastern Asia	44	272	37	553	906
Other	0	0	0	10	10
Total	701	1,231	180	10,332	12,444
B. U.S. Native, country of education:					
North America	6,891	20,207	1,571	195,572	224,241
Latin America	6	61	1	207	275
Europe	101	497	25	3,880	4,503
Africa	0	1	0	7	8
Near East	2	13	0	78	93
Eastern Asia	5	20	0	94	119
Other	0	0	0	23	23
Total	7,005	20,799	1,597	199,861	229,262

C. Derivative, country of education:					
North America	15	57	6	485	563
Latin America	0	2	0	4	6
Europe	1	3	0	59	63
Africa	0	0	0	2	2
Near East	0	1	0	3	4
Eastern Asia	0	2	0	8	10
Other	0	0	0	0	0
Total	16	65	6	561	648
D. Naturalized, country of education:					
North America	30	387	38	4,813	5,268
Latin America	2	109	5	1,588	1,704
Europe	12	256	14	9,874	10,156
Africa	0	1	1	125	127
Near East	3	27	2	893	925
Eastern Asia	3	33	6	998	1,040
Other	0	0	0	5	5
Total	50	813	66	18,296	19,225
E. Canadian, country of education:					
North America	10	400	78	852	1,340
Latin America	0	0	0	3	3
Europe	1	14	2	67	84
Africa	0	1	1	0	2
Near East	0	2	1	8	11
Eastern Asia	0	2	0	3	5
Other	0	0	0	0	0
Total	11	419	82	933	1,445

TABLE 20. *National total of physicians, arranged first by citizenship and then by country of education and training status*—Continued

Citizenship status	Intern	Resident	Fellow	Nontrainee	Total
ACTIVE—Continued					
F. Foreign, country of education:					
North America	21	177	11	161	370
Latin America	372	1,420	167	1,641	3,600
Europe	298	923	164	1,534	2,919
Africa	23	121	32	186	362
Near East	437	2,000	230	950	3,617
Eastern Asia	1,210	3,649	353	1,302	6,423
Other	0	0	0	0	0
Total	2,370	8,290	857	5,774	17,291
Subtotal	10,153	31,617	2,788	235,757	280,315
. Inactive	0	0	0	13,395	13,395
Overseas (located only)	116	325	17	7,066	7,524
. Address unknown	0	0	0	1,306	1,306
. Total	10,269	31,942	2,805	257,524	302,540

NOTE

Volume I of the Report of the National Advisory Commission on Health Manpower contained a statement to the effect that Appendices II through X would be contained in Volume II. However, Appendices IX and X have been eliminated by incorporation of two appendices into Appendix VII as Chapters II and III.

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